

NOVEMBER 1953

MATERIAL FLOW

HANDLING • PRODUCTION • PACKAGING AND SHIPPING

FRANCHISE
CIRCULATION

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Flow Circulation

{ 35,294 FLOW BASIC
104,247 FLOW QUARTERLY



GOT A CASTER PROBLEM?

We're looking for a really tough materials-handling situation to stump our experts.

They have put all the data compiled during 65 years of specialized experience into 80 pages of "know-how", just off the press.

Most industrialists who have seen this book say:—"Why didn't you give me this data before? It's just what I need in solving my caster problems."

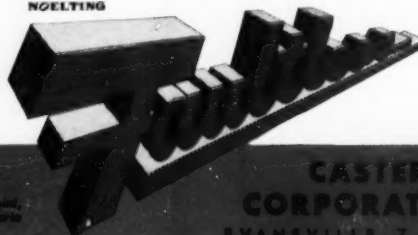
Maybe it's the answer for you, too. Or, if your problem is the rare exception—just tell us, the experts are eager to be challenged. Simply use your letterhead requesting Catalog 157. The services of our engineering staff are also cheerfully offered, no obligation.



What This New Faultless Guide Contains

- Complete Caster recommendations for all industries, institutions, services, etc. using mobile equipment.
- Complete listing of all type wheels and selections for floor and load conditions.
- Complete presentation of Casters engineered for
 1. Light Duty
 2. Medium Duty
 3. Heavy Duty Work
 4. Special Duty Work
- Industry's most complete line of DOUBLE BALL BEARING SWIVEL Casters backed by over 65 years of engineering experience.
- Patented Double-Spring Action Casters that absorb bounce and jounce, have interchangeable standard wheels, swivel regardless of over-load.

NOELTING



**CASTER
CORPORATION**
EVANSVILLE 7, IND.

Circle No. 54 on Reader Service Card for more information

New "EARN-ITS-OWN-WAY" PLAN

puts Automatic in your plant...

today!



Skylift—packed with exclusive, top-performance, money-saving features! For trouble-free, heavy duty service

Automatic®

WORLD'S LARGEST EXCLUSIVE BUILDER OF
ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

with new FINANCE-LEASE PLAN, Automatic Trucks can pay for themselves!

All AUTOMATIC industrial trucks are covered by this new plan for financing and leasing the materials handling equipment you need...so that you can get your truck *immediately* and let it *earn* for you while you pay!

The Company has on file actual case histories of Automatic trucks paying for themselves in periods of less than a year. Businesses of all kinds have been "streamlined" with Automatic materials handling units...with savings in time, in space, and in money.

FINANCING PLAN

A sensible down payment delivers your Automatic truck. The balance is on deferred payment, from 6 to 36 months. *Whatever schedule is best for you!* The regular, low monthly charges include everything...no hidden "extras" to come along later.

LEASING PLAN

Leases for 2 to 5 years, or 2 to 9 years, depending on type of equipment. Low monthly costs, and a variety of lease options for renewals or for purchase available on request. A flexible, low-cost plan!

Don't delay getting full information on this easy new plan for getting AUTOMATIC trucks at once! Mail coupon today!

Automatic

141 W. 87th St., Dept. W-3
Chicago 20, Illinois

Without obligation, I would like more information on the new "Earn-Its-Own-Way" Finance-Lease plan.

Company Name _____

By _____ Title _____

Street Address _____

City _____ Zone _____ State _____

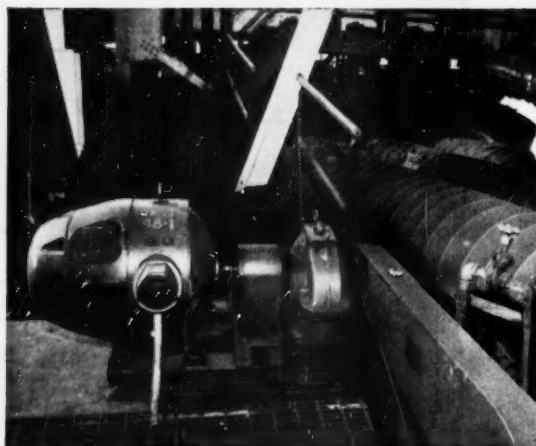
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How does he remember which motors to start first? He doesn't have to—sequence-motor-starting automatically starts complex, related equipment in the right order. Individual motor control handles testing and special operations.



Variable-speed motor, built by Westinghouse, drives raw coal feeders at a constant rate of 20 lbs. per foot.



Westinghouse motor drives Atkins medium spiral densifiers at Robena. These carry damp coal up into chutes.

Does this automatic, 1-man operation give you any materials handling ideas?

At Robena, Pennsylvania, in one of the world's largest and newest coal cleaning plants, chances are you'll find ideas to improve any materials handling setup.

Westinghouse was on the team

Each hour this efficient plant turns out 650 tons of high-grade metallurgical coal, free of rock, slate and other foreign matter. Its owner, U. S. Steel Company, and their cleaning plant designer, McNally-Pittsburgh Manufacturing Corporation, did a top-flight engineering job. Westinghouse supplied practically all the electrical equipment.

One man, many buttons

The main idea behind this outstanding operation is automatic, centralized control. One man presses a few buttons and processing machines start automatically, in just the right order. There's no time lost by men following check charts and running all over the plant. This reduces the chance of human error and, more important, it boosts output per man-hour.

Siren sounds pile-up warning

Once under way, plant operation is kept safe and smooth by additional electrical controls. If a piece of equipment becomes overloaded, a siren sounds to inform the operator. If the overload persists, coal feed to the unit is automatically stopped to prevent pile-ups. If the unit still remains overloaded, it automatically shuts down to avoid damage.

Next time call Westinghouse

A bulk-handling operation like this cuts labor costs, protects equipment, and reduces the amount of usable product reaching the refuse pile. Automatic electrical control and first-rate equipment engineering make the difference. Westinghouse, experienced in all industries, can contribute both to your next materials handling project. Call your nearby Westinghouse office early in the planning stage. Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania.

J-94986

YOU CAN BE SURE...IF IT'S
Westinghouse



**Write for this
free booklet**

**See How
CARGOTAINERS*
Reduce Materials-
Handling Costs**



Here's a new booklet that will show you how others are shipping and storing a wide variety of products in Pittsburgh Wire Cargotainers and reducing their materials-handling costs substantially. The booklet shows:

- How a firm saved \$49,784 in storage area building costs.
- How a firm reduced unit handling costs from \$6.15 to \$3.24.
- How Cargotainers paid for themselves in 7 months and saved \$4,600 the first year.
- How all types of lift trucks and cranes handle Cargotainers.
- How Cargotainers stack and save storage space.
- How leading firms use them for production economy.
- How production and inventory control is increased.
- How other methods have been replaced.
- How you can get special types of Cargotainers.

All this valuable information is yours for the asking. Fill out the coupon below or write on your business letterhead and we will send it promptly.

*Cargotainers is the registered trade-mark of the Pittsburgh Steel Products Company.

CARGOTAINERS

by

Pittsburgh Steel Products Company

a subsidiary of

Pittsburgh Steel Company

Pittsburgh Steel Products Co.
1401 Grant Building
Pittsburgh 30, Pa.

Gentlemen:

Please send at once a copy of your new booklet "Cargotainers."

Name _____

Title _____

Company _____

Address _____

Circle No. 117 on Reader Service Card for more information

FLOW • NOVEMBER, 1953

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MATERIAL FLOW

NOVEMBER, 1953
VOLUME 9, NO. 2

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✓ Check your Hoist needs...

• Here's a check list of the complete line of WRIGHT Hoists that will show you the many models available for a wide variety of lifts around shop or plant.

WRIGHT Hand-operated Equipment

STYLE	TON CAPACITY
CRANES	
<input type="checkbox"/> Top running, hand traveling	1 to 25
<input type="checkbox"/> Underhung, hand traveling	1 to 10
<input type="checkbox"/> Jib type, wall mounted	½ to 3
END TRUCKS for Cranes	
<input type="checkbox"/> Top running, hand traveling	1 to 10
<input type="checkbox"/> Underhung, hand traveling	1 to 10
HOISTS	
<input type="checkbox"/> Wright Safeway, light, portable	½ to 4
<input type="checkbox"/> Wright Safeway, clevis-connected	½ to 4
<input type="checkbox"/> High Speed, improved	5 to 50
<input type="checkbox"/> Handwheel, extended	¼ to 3
<input type="checkbox"/> Twin hook	¼ to 10
<input type="checkbox"/> Differential	¼ to 1½
TROLLEY HOISTS	
<input type="checkbox"/> Wright Safeway Army type	½ to 3
<input type="checkbox"/> Improved Army type	4 to 10
<input type="checkbox"/> Hi-Way 600 type	¼ to 24
TROLLEYS ONLY	
<input type="checkbox"/> Timken	¼ to 40
<input type="checkbox"/> Hyatt	¼ to 5
<input type="checkbox"/> SARB	¼ to 12
<input type="checkbox"/> Wrightway	½ to 3
<input type="checkbox"/> Double beam	2 to 20

WRIGHT Motor-driven Equipment

CRANES	
<input type="checkbox"/> Top running	1 to 25
<input type="checkbox"/> Underhung	1 to 10
DRIVE UNITS for Cranes	
<input type="checkbox"/> Size 1, with ¾ hp. to 2 hp. motor	
<input type="checkbox"/> Size 2, with 3 hp. to 7½ hp. motor	
HOISTS	
<input type="checkbox"/> Frame 1, Speedway	¼ to 2
<input type="checkbox"/> Frame 1, Speedway, close headroom	¼ to 1
<input type="checkbox"/> Frame 1, Speedway, long-lift	¼ to 1
<input type="checkbox"/> Frame 2, Speedway (all suspensions)	½ to 6
<input type="checkbox"/> Frame 3, Speedway (all suspensions)	1½ to 10

for information on the complete line of WRIGHT ELECTRIC HOISTS
write for Catalog E-50A

ACCO



WRIGHT HOIST DIVISION
AMERICAN CHAIN & CABLE

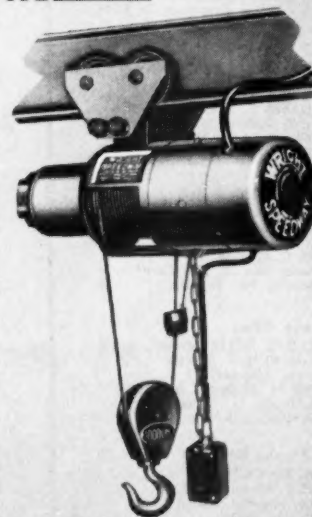
York, Pa., Chicago, Denver, Detroit, Los Angeles, New York, Philadelphia,
Pittsburgh, San Francisco, Bridgeport, Conn.

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WRIGHT SAFEWAY



WRIGHT SPEEDWAY



WRIGHT
Hoists
Trolleys
Cranes



The Elwell-Parker F-38T Cargo Scout is ideal for: (1) fast handling at all times, (2) loading road trucks or freight cars, (3) use in narrow aisles or congested areas. 2000 lbs. capacity.

Can You Match These Savings of the E-P "Cargo Scout"?

POWER COSTS ARE PENNIES PER DAY because the Cargo Scout has *electric* power. No vulnerable clutch and reciprocating parts to wear out. No idling waste of fuel. No battle with exhaust fumes. No interference with radio communication.

FASTER, SIMPLER MAINTENANCE because of unit assembly design. All Cargo Scout parts are instantly accessible for lubrication. Major assemblies are independent, permitting swift removal for bench repair.

ELWELL-PARKER
POWER INDUSTRIAL TRUCKS

Established 1893

Can You Match the "Cargo Scout's" Agility?

360° STEERING, plus short 57" turning radius makes operation easy in close quarters. Small elevators are no longer a problem.

TELESCOPING UPRIGHTS permit *full* use of storage area. 100" of lift with only 68" overall height with uprights retracted and full 50" of free lift.

END CONTROL helps where driver must get on and off frequently. Better vision, too.

Get *cost-conscious* about your fork trucks. Get full facts on the new E-P Cargo Scout. Write The Elwell-Parker Electric Co., 4290 St. Clair Ave., Cleveland 3, Ohio.

Circle No. 50 on Reader Service Card for more information

NEW

...and built for YEARS of service!



IN 24 SECONDS one man can tilt and dump fully loaded dirt hopper.



CAR-TYPE FEATURES, like automotive steering, allow fast easy handling. Note rugged construction.

TENNANT MODEL 75 POWER SWEEPER

Here's a sweeper built to keep paying for itself for years—the new fast-sweeping TENNANT Model 75.

Use it on tough round-the-clock jobs and see the difference that heavy-duty design makes. Fast, clean sweeping... quick dumping... and extra years of service with minimum downtime.

- 1 **SWEEPS FASTER.** Top capacity exceeds 100,000 sq. ft. per hour (with sidebrush and 6" overlap). Safe; drives like a car. Does clean job.
- 2 **DUMPS MECHANICALLY.** Ratchet lever dumps fully loaded hopper in 24 seconds or less. Saves time; operators like it. Easy to use.
- 3 **HIGHLY MANEUVERABLE.** Turns in only 60° radius (with or without sidebrush). Has instant reverse, rear wheel steering, positive braking action. Saves valuable time.
- 4 **HANDLES BULKY DEBRIS.** Over 11" front clearance of frame. For easier pickup of cartons, sweeping ramps, etc. Write for details.



ELECTRIC sweeper is quiet, economical. Write for special bulletin.



COMPACT 29" wide sweeper (Model 24) has many uses, does fast, clean job.



G. H. TENNANT CO.
2576 N. 2nd Street
Minneapolis 11, Minn.

Offices in Principal Cities

INDUSTRIAL FLOOR MACHINES

CREATORS OF THE TENNANT SYSTEM OF FLOOR MAINTENANCE—MANUFACTURERS OF EQUIPMENT AND MATERIALS FOR MAINTENANCE OF FLOORS, DECKS, ROOFS, HIGHWAYS

Circle No. 144 on Reader Service Card for more information

LETTERS to the editors

Container vs. Carrier

To FLOW:

We are looking for an improved method of packaging our pancake and waffle syrup that will be acceptable for shipment via common carrier.

We now use the conventional 5-gallon square cans. To be acceptable for common carrier shipment they must be boxed in corrugated containers.

Has a better packaging method ever been developed for such products? We can afford to pay more for a re-usable container, if the unit packaging cost could be reduced over the life of the container.

C. L. Ackerman
Production Engineer,
California Dept. of Corrections

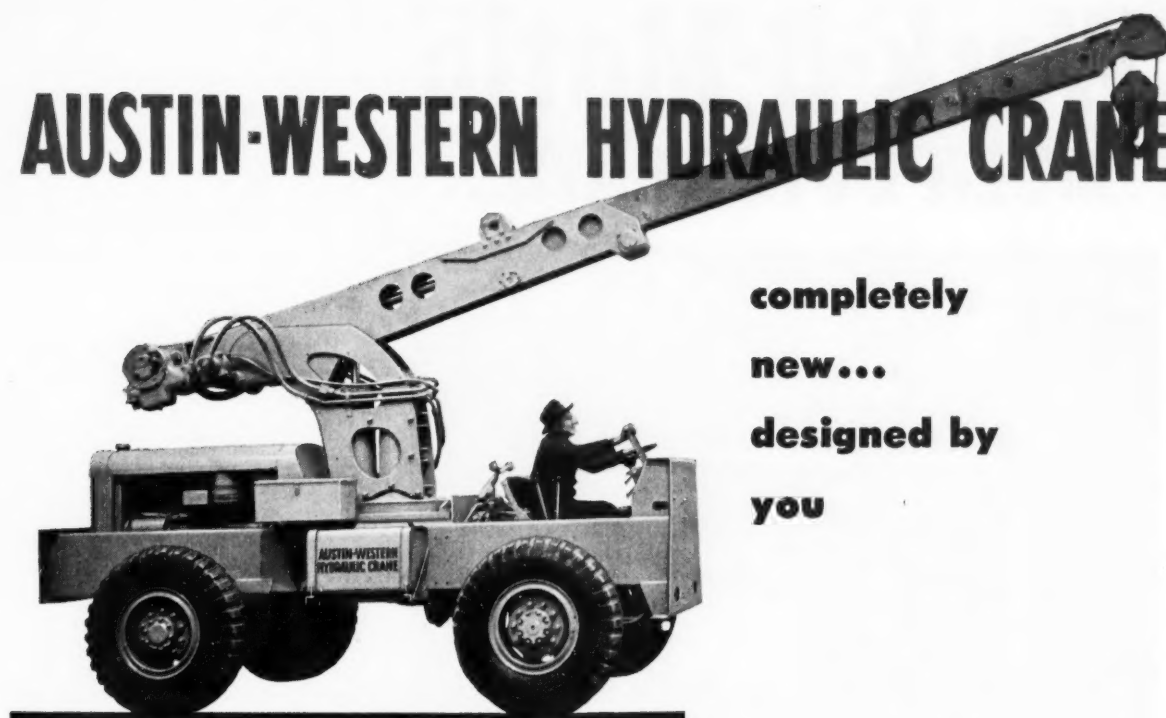
Before answering Reader Ackerman's query we have asked him to clarify a few points in order to assist him adequately... whether or not cans presently are filled by hand or by machine... whether or not the syrup remains in a flowable state, or possibly forms a sludge... whether or not the 5-gallon size container is preferred over a larger one for bulk shipments. Perhaps our readers can come up with something worth passing along to Mr. Ackerman.

Handling Adds Value

To FLOW:

Several years ago I read an excellent article concerning material handling which was most effective in explaining how much "handling" added to the value or cost of a product. It followed the theme of another article which

AUSTIN-WESTERN HYDRAULIC CRANE



**completely
new...
designed by
you**

the crane of unlimited indoor-outdoor use



Designed only after making a complete analysis of your crane requirements—here is TOMORROW'S answer to TODAY'S materials handling problems.

Completely hydraulically operated including

Continuous 360° turntable rotations
Extension and retraction of the boom
Raising and lowering of the cable
Boom elevation

This amazing, new, self-propelled Hydraulic Crane, with its pickup, carrying and placement capabilities combines the best features of crawler, truck and erection cranes . . . and, like all other Austin-Western products, it's "Built to Outperform".

Send for additional information NOW.

AUSTIN-WESTERN COMPANY

Construction Equipment Division • Baldwin-Lima-Hamilton Corporation

AURORA, ILLINOIS, U.S.A.

Power Graders • Motor Sweepers

Road Rollers • Hydraulic Cranes

AUSTIN-WESTERN COMPANY

620 Farnsworth Avenue, Aurora, Illinois

Please send complete information and literature on the Austin-Western Hydraulic Crane.

Name

Title

Company

Street

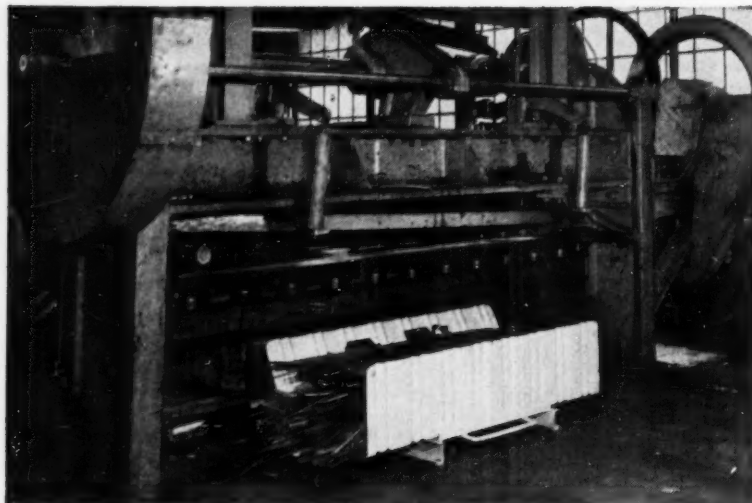
City Zone State

Other products: Power Graders, Motor Sweepers, Road Rollers

Circle No. 13 on Reader Service Card for more information

Work-O-Matic^{*}

MULTI-DUTY TRAYS...



COLLECTING—Notice how the Work-O-Matic Multi-Duty Tray back extends to gather in better-shelter falling pieces. Vertical front compacts to a full load.



SPOT-CONTROL DUMPING



SAFE TIERING

collect, transfer, store, position and/or dump lengthy parts

A versatile new unit developed especially to handle troublesome shear trimmings, tube and bar cutoffs, blanking skeletons and other hard-to-handle pieces. Designed to be lifted, transferred, tiered, and mechanically dumped with a fork truck... at any height from about ground level to full fork lift. Also ideal for work positioning.

Send for complete details. Ask for Catalog No. 83 on the Work-O-Matic Tray and the other cost-cutting Work-O-Matic units that make up the *Work-O-Matic System*... the new material handling system being adopted widely by cost-conscious manufacturers and warehousemen. Address The Union Metal Manufacturing Co., Canton 5, Ohio.

*Patent No. 2,445,038. Other patents pending.

UNION METAL
Material Handling Equipment

Circle No. 151 on Reader Service Card for more information

LETTERS

Continued

showed how raw iron ore increases in value as it is handled through many processes until an ultimate product has been fashioned from the steel.

Has FLOW done anything along this fashion? The information would be valuable to me.

T. A. Lingoni, Storekeeper
Louisiana Power & Light Co.

To our knowledge FLOW has not carried an article of this specific nature. We are referring Reader Lingoni to our May, 1953, issue which discussed material handling costs in detail. From this issue he may be able to find much along the lines he desires.

Reference Service

To FLOW:

I am endeavoring to write an article on the organization and management of industrial truck programs in industry today. I plan to cover the following phases in my article. (1) history of the industrial truck, (2) fundamentals for determining the need for one or more trucks, (3) selecting the proper type and size of truck, (4) organizing a control for dispatching trucks, (5) organizing a maintenance program, (6) organizing a cost control program.

I would appreciate receiving tear sheets or any other information including comments which you may have available at the time.

Richard C. Hermann
Belleville, New Jersey

Tear sheets of articles being sent to Reader Hermann should prove considerably helpful in the preparation of his article.



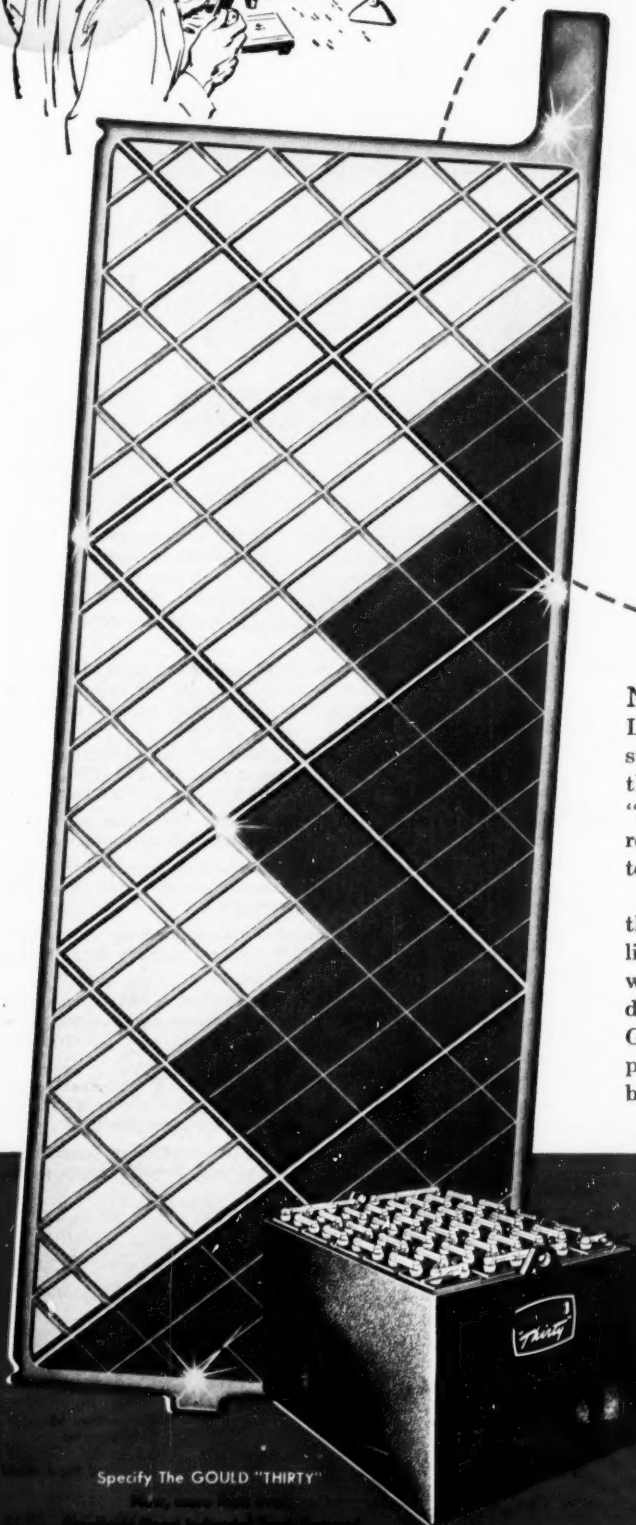
"Years Ahead Thanks to Gould Research"

New DIAMOND "Z" GRID

NEW research developments from the great Gould Laboratories now make it possible to combine the structural bracing of the original Diamond grid with the uniform density so perfectly accomplished in the "Z" grid. The result is a grid that's years ahead of requirements, built to the demands of users and tested under tough day in and day out service.

The new Diamond "Z" grid cannot "grow" under the toughest kind of treatment. Its diamond, bridge-like construction has extra strong members that withstand abuse and deliver the rugged service future demands will require. Another step forward in Gould's research program to give you *extra* battery performance, longer battery life! When you buy, buy Gould!

© Gould-National Batteries, Inc.



Specify The GOULD "THIRTY"

World's Most Industrial Truck Battery

GOULD

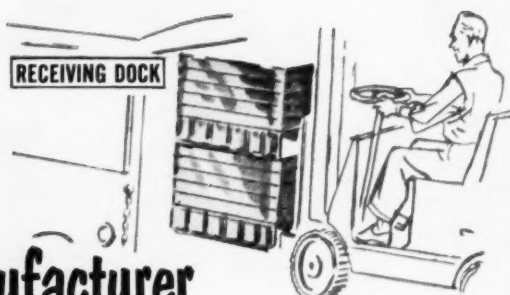
INDUSTRIAL BATTERIES

GOULD-NATIONAL BATTERIES, INC.

Trenton 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

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Leading Tool Manufacturer

Saves \$50,000

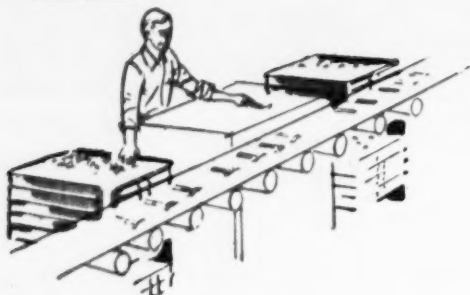
First Year

With

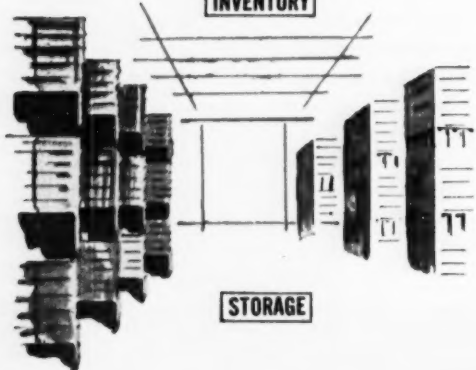


job designed containers

ASSEMBLY

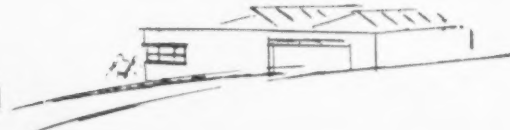
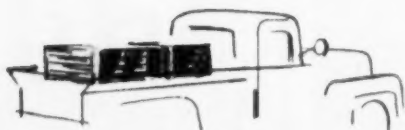


INVENTORY



STORAGE

PARTS COSTS



The **POWELL** Pressed Steel Co.

Hubbard, Ohio

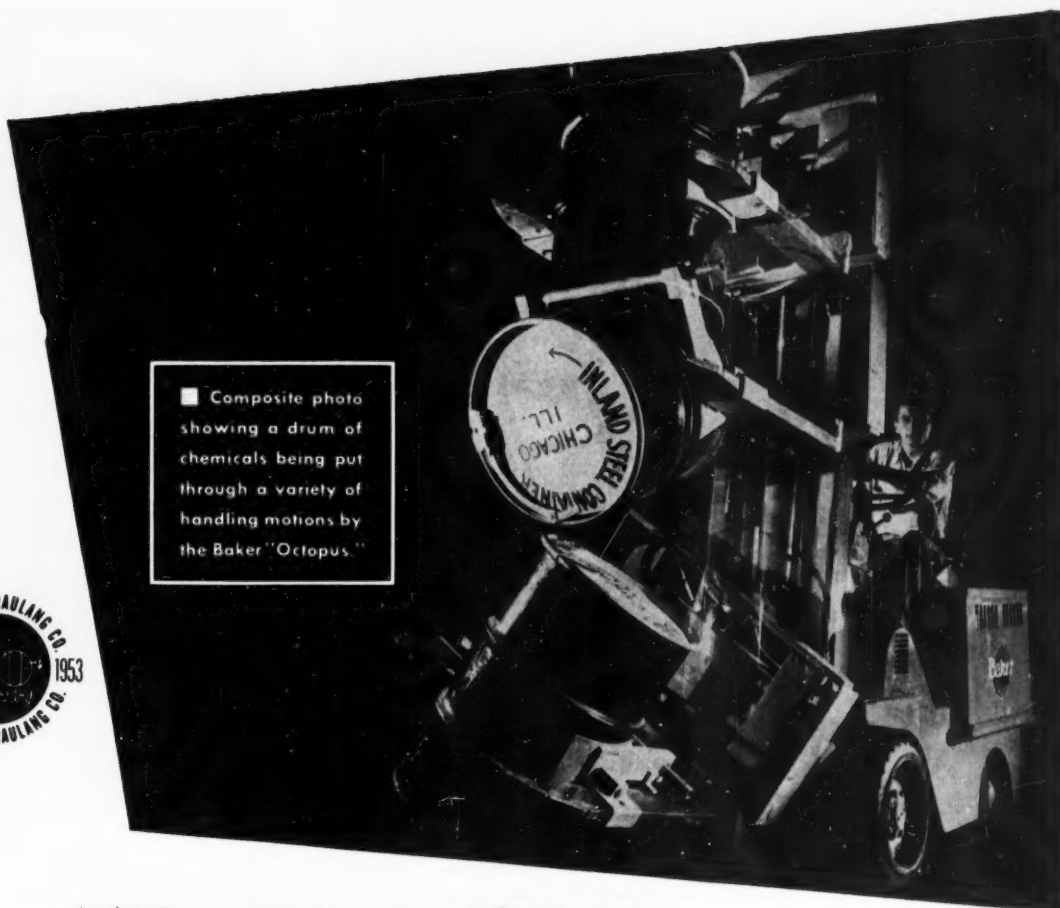
Originators of
Cold-Formed
All-Steel
Handling Equipment

Circle No. 118 on Reader Service Card for more information

FLOW • NOVEMBER, 1953



■ Composite photo showing a drum of chemicals being put through a variety of handling motions by the Baker "Octopus."



This BAKER TRUCK handles any shape load ... *and stacks it in any position!*

■ You name the load—the Baker "Octopus" illustrated will handle it, whether it's a drum, a roll of newsprint, a packing case, a piece of machinery, a bale of cotton or a pallet load of cartons. Moreover, it will pick it up, transport it, raise or lower it, shift it to left or right, revolve it, up-end it, or stack it in any position. In fact, it will handle it with no more physical effort than is needed to operate the simple hydraulic controls.

The "Octopus" consists of a standard Baker Fork Truck equipped with a variety of Baker attachments—360° revolving head, 4-purpose carriage, up-ender, drum clamp, etc.—which may be applied individually or in combinations. While one truck may never be called on to perform all these functions, the "Octopus" demonstrates the range of utility of Baker fork trucks and attachments.

Baker

industrial trucks

write for

6-page special report on the application of Baker attachments to various loads.

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

BAKER-LULL Corporation, Subsidiary, Minneapolis, Minn.
Material Handling and Construction Equipment.

Circle No. 18 on Reader Service Card for more information

KEEP IT MOVING-

WITH

Fairbanks HAND TRUCKS

The best trucks made
for your materials
handling job



THEY'RE TOUGH: steel framed wood chassis
for strength and shock absorption.

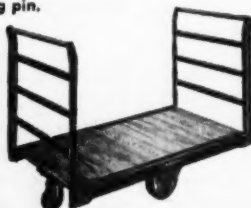
THEY'RE SMOOTH: available with any type of
wheel—Semi-Steel to Vulcanized
Rubber Tired, with roller bearings and
pressure lubrication—for easy rolling
everywhere.

THEY'RE BALANCED: a COMPLETE line pro-
viding the right style for your partic-
ular material handling requirements.



Series 21 LOCK-WELD Swivel Casters
eliminate the greatest cause of caster
failure: the king pin.

Fairbanks Steel
Framed Platform Trucks take
the LOAD off your mind.



Write for your copy of Fairbanks SFT Bulletin
for further details on steel framed hand trucks

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VALVES • DART & PIC UNIONS • TRUCKS • CASTERS
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association and society NEWS

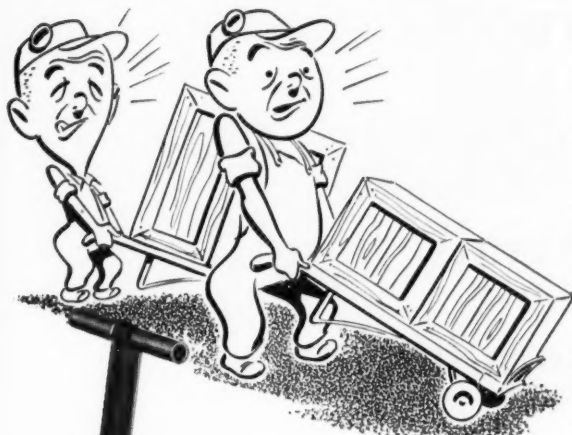
• The Montreal chapter of the American Material Handling Society will conduct a full day seminar at the Hotel Windsor in Montreal on November 4. The event is expected to highlight the entire year's program and will consist of round table discussions on problems in the various fields of material handling. Chapter membership this year is expected to reach the 200 mark.

• Illinois Senator Everett M. Dirksen will address the opening session of the 35th annual meeting of the American Bottlers of Carbonated Beverages, on Tuesday, Nov. 10, at Chicago's International Amphitheatre. More than 6000 members of the bottled soft drink industry are expected in Chicago Nov. 9-12 for their annual convention and exposition.

• A "Stump The Experts" round table meeting will be conducted by the Cleveland chapter of the AMHS when it meets Nov. 19. Robert C. Brady, of the W. B. McClelland Co., will moderate the session. Brady formerly was material handling engineer for Helene Curtis Co., Borg-Warner Co. and was director of research for the Material Handling Institute.

• A joint meeting of the Philadelphia chapters of the AMHS and the SIPMHE has been scheduled for November 23, according to Charles F. Gross, secretary-treasurer.

Why pay 2 men — to do a 1-man job?



Lightweight



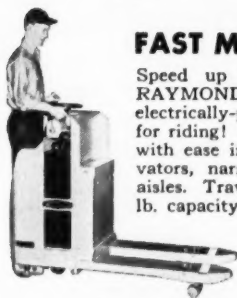
PALLET LIFT TRUCK

NOW . . . one man can do the work
of two or more men with this
modern . . . lightweight . . .
RAYMOND Pallet Truck!



FAST MOVER!

Speed up lateral handling with this RAYMOND Low-Lift Truck . . . it's electrically-powered, designed especially for riding! Fast, maneuverable, operates with ease in truck trailers, boxcars, elevators, narrow storage and production aisles. Travels up to 6 mph, has 4,000 lb. capacity.



What's the secret? Hydraulic power—not the operator . . . does the heavy lifting, elevating loads weighing up to 2,000 lbs. A few pumps on the foot pedal and the load is ready for hauling. A separate release pedal lowers the load gently and smoothly . . . permits it to be stopped at any point.

Use this RAYMOND Pallet Truck for short hauls and peak period handling or to release power trucks for long hauls and tiering. It's smooth-rolling, has full 270° steering arc for maneuvering in cramped quarters. Available in 2,000 lb. capacity model illustrated, or in Heavy Duty 4,000 and 6,000 lb. capacity models.

SEND FOR BULLETIN

Learn how RAYMOND Pallet Trucks can help you cut costs, use manpower more efficiently. Contact your nearby RAYMOND representative and arrange for a demonstration!

The RAYMOND CORPORATION

3315 Madison St., Greene, N.Y.

Please send me Bulletin 207, describing RAYMOND Hydraulic Pallet Lift Trucks. Also Bulletin 750, showing your Low-Lift Electric Truck.

Name Title

Company

Street

City State



**ELECTRIC INDUSTRIAL TRUCKS
HYDRAULIC ELEVATING EQUIPMENT**

Circle No. 123 on Reader Service Card for more information

Announcing
a new combination by two
leaders in materials handling,
to serve you better



Mechanical Handling Systems has purchased Louden Machinery Company, Fairfield, Iowa, manufacturer of monorail and overhead crane equipment.

With this acquisition, a new team with greater capabilities for service to all industry has taken the field.

Louden is a firm with an 86-year history of quality manufacturing. Louden overhead cranes, monorail, and special equipment are speeding materials handling and cutting costs in thousands of plants.

Mechanical Handling Systems has been designing, engineering and building conveyor systems of all types, in many industries, for 34 years. The MHS field includes simplest installations and multi-million-dollar automated plants.

Together, Mechanical Handling and Louden complement each other in products, experience, engineering, manufacturing facilities and skills, and field manpower.

To American Industry the new combination brings a broader, more advantageous, more valuable service in the materials handling field.

Present sales offices and organizations of the two companies remain separate and independent.

Mechanical Handling Systems Inc.

4620 Nancy Ave., Detroit 12, Michigan

Offices in Principal Cities

In Canada: Canadian Mechanical Handling Systems Ltd., Toronto



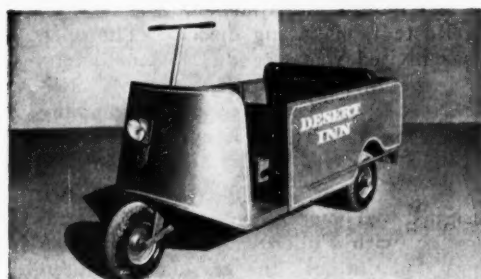
Circle No. 101 on Reader Service Card for more information



AUTOETTE Electric *Pickup Trucks* CUT your LIGHT-HAULING COSTS to...



VAN CAMP SEA FOOD CO. employs this 1/4-ton AUTOETTE Pickup Truck for transporting watchmen, over a 2-mile circuit in its cannery at Terminal Island, California.



DESERT INN—one of the show places at Las Vegas, Nevada—keeps a number of Special 1/4-ton AUTOETTE Pickups busy...transporting luggage to hotel rooms...maintaining room service...and doing many other useful chores.

AUTOETTE Electric Pickup Trucks sold by:
 Autoette Sales & Service, Los Angeles, Calif.
 Blood Enterprises, Inc., Long Beach, Calif.
 Western Autoette Sales, Salt Lake City, Utah
 Rapid Sales Corporation, Maywood, Ill.
 Guelich & Boebel, Inc., Buffalo, N. Y.
 B. F. Shearer Company, Seattle, Wash.
 Brayley & Graham, Portland, Oregon
 Gill Ride Company, Spokane, Wash.
 Van Arsdale-Harris Lumber Co.,
 San Francisco, Calif.
 Wm. J. Trombley, Dallas, Texas



1/5 cent per TON-MILE!

AUTOETTE Electric Pickup Trucks are famous for their amazing economy. Only 3 cents for electricity for 12 hours of daily hauling...30 miles of travel. That's less than a dollar a month—\$10.00 a year—1/5 cent per ton-mile!

IDEAL FOR LIGHT HAULING

AUTOETTE Pickup Trucks are perfect for all types of light hauling...in industrial plants...docks and warehouses...resort hotels...movie lots...golf courses...estates and ranches.

RUGGEDLY BUILT FOR LONG LIFE

Both the 1/4-ton and 1/2-ton AUTOETTE Pickups are expertly designed and ruggedly built to give years of dependable, trouble-free service. Because there's no engine or complicated parts, the AUTOETTE is free from costly repairs and adjustments.

For complete information and colorful AUTOETTE brochure, sign and return the coupon below.



**AUTOETTE, INC. • Dept. 1311
730 W. Esther • Long Beach, Calif.**

Please send information about Pickup Trucks

Name

Title

Company

Address

City State

only 3¢ for electricity...for up to 12 hours of daily hauling

Circle No. 163 on Reader Service Card for more information

NEWS VIEWS TRENDS

YALE & TOWNE OFFERS FINANCING SERVICE

A new financing service for the sale and lease of industrial lift trucks was announced by Gilbert W. Chapman, president of The Yale & Towne Manufacturing Company. This service has been instituted by the company in New York through a wholly-owned subsidiary, The MHE Corporation, and is now available to customers of Yale & Towne's Yale Materials Handling Division in Philadelphia and the Automatic Transportation Company in Chicago. The two principal features of the service are a "time sales" plan for the purchase of equipment by customers who wish to defer payments for as long as 36 months, as well as a "leasing" plan for those who desire to lease rather than purchase lift trucks. The plan permits leasing gas trucks from two to five years and electric trucks from two to nine years, and also provides options for either renewal or purchase.

WIREBOUND INSTITUTE COURSES START

The third group of students has been enrolled in the Wirebound Institute by its sponsor, the Wirebound Box Manufacturers Association, and has started its studies in wirebound box and crate design and specifications. The new registrants will cover a series of 25 lessons, and will be graduated next September as "Wirebound Engineers".

HYSTER OPENING IN NETHERLANDS

Formal opening of the Hyster Company's new European manufacturing facilities were celebrated last month in Nijmegen, The Netherlands, according to Frank A. Rostedt, managing director. The open house to which the public was invited was attended by customers, dealers, vendors, government and municipal officials. Ernest G. Swigert, president, Harvey Black, vice president, and other company officials from Portland, Oregon, were present at the event.

AIRSLIDE CAR TO TOUR NATION

The Airslide car, built and designed by General American Transportation Corporation in collaboration with Fuller Company, has been started on a nation-wide tour. The interest the car has produced prompted General American to map out the tour, and railroad executives and shippers asked that other members of their organizations be given the opportunity to examine the car and its method of operation. The car is touring the West this month, and each exhibition will be free and open to railroad and traffic executives, as well as to the public.

EXIDE FORMS TWO DIVISIONS

S. Wyman Rolph, president of The Electric Storage Battery Company, has announced the establishment of two company operating divisions—industrial and automotive. The action further effectuates plans, including improvement of physical facilities, which have been under development for several years. Roland Whitehurst, vice president and director, has been appointed general manager of the firm's new industrial products division. Heading the new automotive products division as general manager is Robert L. Sommerville, formerly assistant general sales manager. The move was made because of the different natures of the industrial and automotive businesses.

More MONARCH TIRES



on their way TO ORIGINAL EQUIPMENT MANUFACTURERS

JUST as the automobile makers have favorite tires, so do the lift truck manufacturers. Monarch supplies many solid tires to lift truck and other original equipment manufacturers. That's because Monarch specializes exclusively in solids and, over the years, has built a "solid" reputation for quality. Lift truck manufacturers expect Monarch to produce the best in solid industrial tires.

When you need replacements for your trucks, check your lift truck dealer. He stocks all sizes of Monarchs and can equip your truck on the spot.



THE
MONARCH

RUBBER COMPANY

550 LINCOLN PARK • • HARTVILLE, OHIO
7-255 GENERAL MOTORS BLDG. • DETROIT 2, MICH.

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS

Circle No. 109 on Reader Service Card for more information

CLARK SETS UP SCHOLARSHIP

The Clark Equipment Company has established a \$2000 scholarship fund at the Illinois Institute of Technology for students majoring in material handling, it was announced by Dr. Ralph G. Owens, dean of engineering. Known as the Eugene B. Clark scholarship, in honor of the founder of Clark Equipment, the scholarship will be awarded annually to a junior working for a degree in industrial engineering and majoring in material handling. The grant will cover tuition costs for the student's final two years in school. Clark established the scholarship to encourage interest in the field of material handling among student engineers.

BARRETT-CRAVENS MERGES PLANTS

A manufacturing plant, being constructed by Barrett-Cravens Company at Northbrook, Illinois, will combine the manufacturing operations of two Barrett-Cravens plants located in Chicago and a part of the operations of the Crescent Truck Company, a subsidiary located in Lebanon, Pennsylvania. The company's general offices and engineering department will be located in the new plant, which will also house the Barrett-Electronics Corporation, recently established for the development of electronic equipment for practical industrial use.

MAGLINE NOW IN CANADA

Magline Inc. announces the formation of a Canadian corp. to manufacture and distribute its principal products within the Dominion. The company, to be known as Magline of Canada, Ltd., will headquarter at Renfrew, Ontario, and will produce the full line of Magline magnesium products.

PAPER FIRMS TO COMBINE

Combination of West Virginia Pulp and Paper Company and The Hinde & Dauch Paper Company was recommended by the boards of directors of the two companies at separate meetings. The action is subject to necessary stockholder acceptance. On the basis proposed, shareholders of Hinde & Dauch will receive for each of their shares 1 1/3 shares of new West Virginia common stock, after a 4 for 1 split of its present common. Hinde & Dauch is to be operated as a subsidiary of West Virginia Pulp and Paper Company with the operations, personnel and customer relationships of the two companies continuing as they are at present.

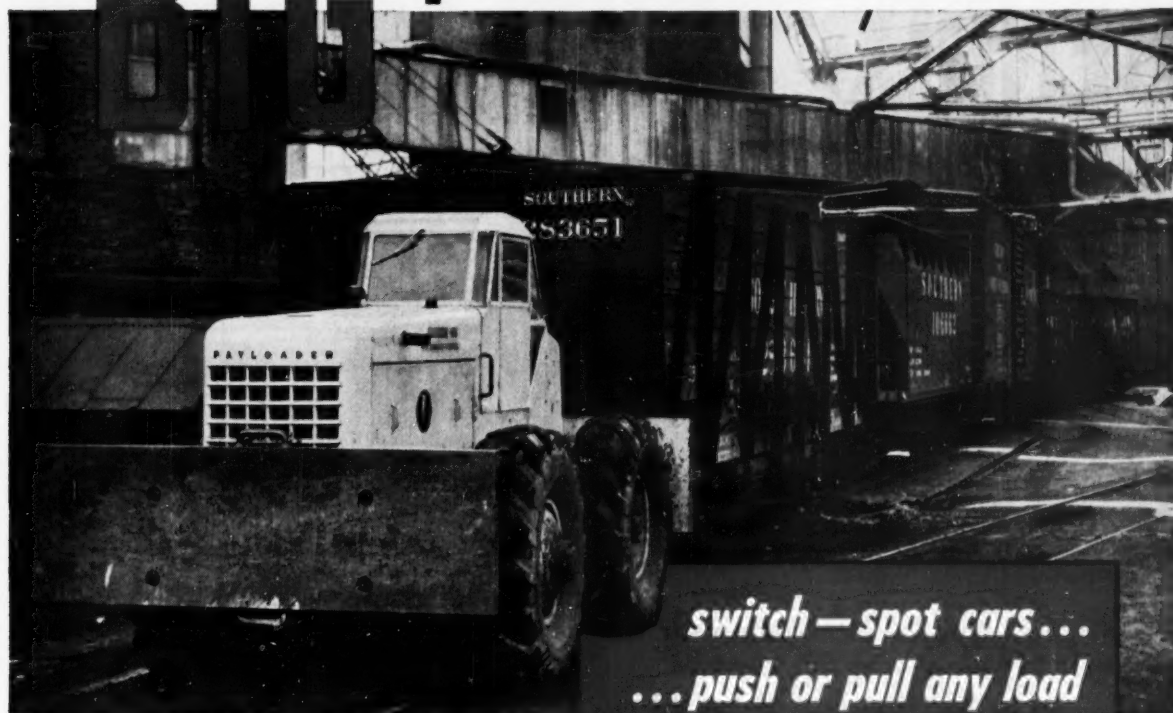
NEW ADDRESS

Algene Marking Equipment Company, manufacturers of marking machines, have announced the moving of their office and plant to new and larger quarters. The new address is 232 Palisade Avenue, Garfield, New Jersey, and the phone number is Prescott 7-8041.

WORK SAVING WEEK

A national drive to make work easier in America's factories was announced by Professor John R. Immer, professor of industrial management at The American University in Washington, D.C. Factories are urged to start plans for a local Work Saving Week campaign to coincide with the national drive, November 16-20.

BIG 4 Wheel Drive TRACTOR



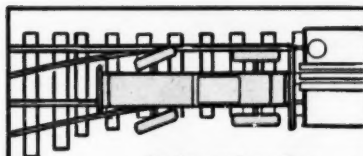
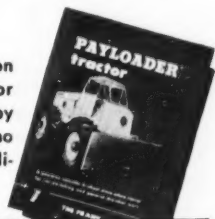
Model TM "PAYLOADER" tractor is an unusual combination of power, mobility and traction under precise control. It will speed the spotting of cars in plants, yards, terminals and docks . . . provide tremendous tractive effort for many other jobs.

It has reliable traction on all kinds of surfaces thanks to its all-wheel-drive and big pneumatic tires. Torque converter plus full-reversing transmission with four speeds both forward and reverse permits working in either direction . . . has powerful load-starting ability . . . precise load-spotting control . . . any desired speed selection from "crawl" up to 24 mph. Power boosted steer gives

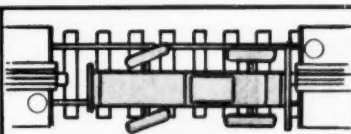
additional ease of control and maneuvering speed.

The Model TM can be had with gasoline or diesel engine — develops up to 16,000 lbs. drawbar pull with gasoline and 14,000 lbs. with diesel power. The Frank G. Hough Co. 945 Sunnyside Avenue, Libertyville, Illinois.

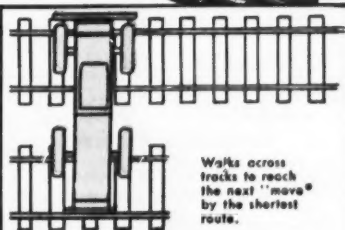
WRITE for full information on this powerful versatile tractor and the name of the nearby "PAYLOADER" Distributor who sells and services it. No obligation.



Big tires work on ties, ballast, pavement or ground . . . walk over switch points . . . eliminate need for switchman.



Needs only small space to maneuver between cars — pushes or pulls from either end. Cars can also be pulled or braked from alongside by means of a chain or cable hitch.



Walks across tracks to reach the next "move" by the shortest route.



Circle No. 72 on Reader Service Card for more information

This is the **BENDIX "MULTI-MASTER"**

... the 2-way Mobile Radio with a thousand uses!

1. The Bendix "Multi-Master" can be used as a fixed station.
2. It can be used as a mobile unit.
3. Easily adapted to narrow band operation.
4. It works on either AC or DC current.
5. It is available from 2½ to 60 watt output.
6. Pull up . . . pull out . . . or pivot for easier servicing.
7. It can be transported from one location to another.
8. It can be transferred from one vehicle to another.

It's a new, clean and rugged design. Light in weight, compact. All controls mounted on front panel.

The Bendix Multi-Master incorporates all the new and outstanding features of Bendix 2-way radio. It has range and power. Static free reception. Longer life components. Low power drain.

Bendix offers a complete line of accessories from hand sets to speakers, antenna to shock mounts . . . plus all technical help in obtaining license and complete system engineering.

It cost no more to own the best . . . so look at Bendix Radio before you buy. For complete details and specifications, write today to the address below.



BENDIX* RADIO

BALTIMORE 4, MARYLAND

A DIVISION OF BENDIX
AVIATION CORPORATION

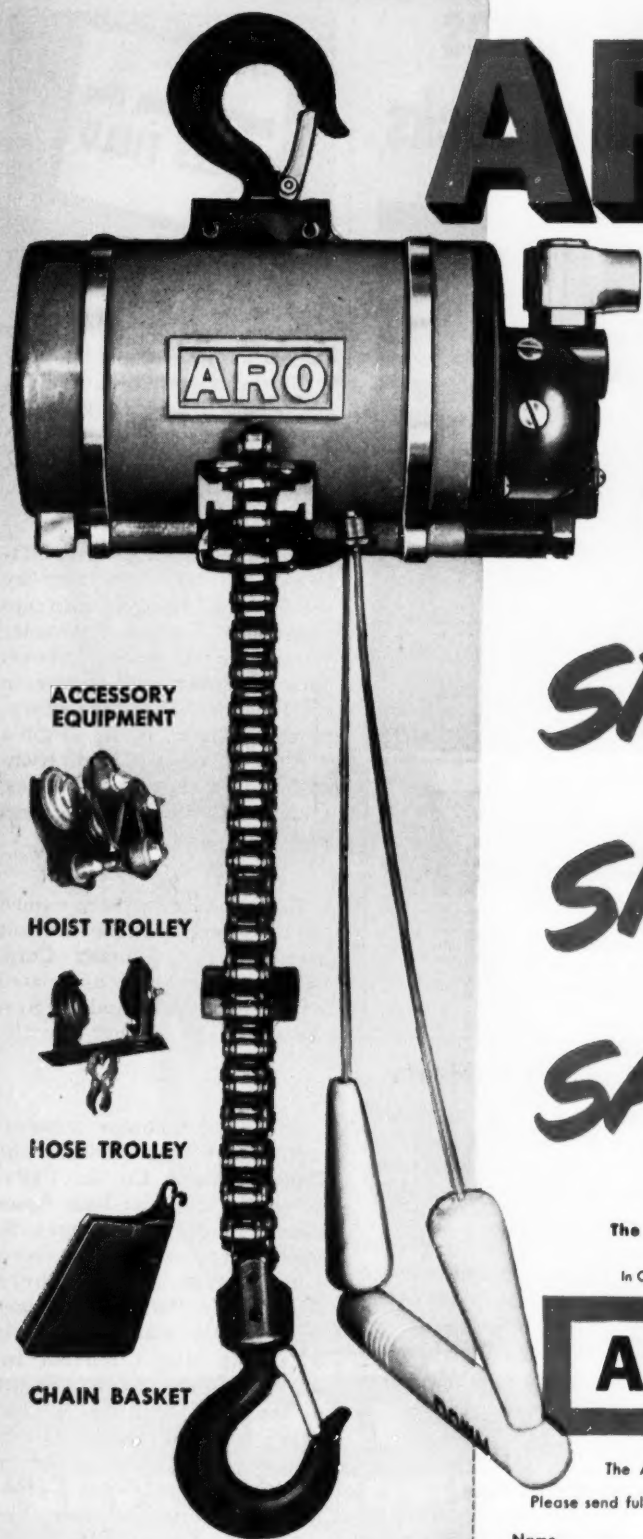
Export Sales: Bendix International Division,
72 Fifth Avenue, New York 11, N. Y.



*REG. U. S. PAT. OFF.

Bendix THE MOST TRUSTED NAME IN **Radio**

Circle No. 172 on Reader Service Card for more information



ACCESSORY
EQUIPMENT



HOIST TROLLEY



HOSE TROLLEY



CHAIN BASKET

ARO

1000 pound AIR HOIST

for

SPEED...

Lift rate ...
over 40 ft. per minute!

SIZE...

Overall length 10 $\frac{1}{4}$ "
weighs only 28 $\frac{1}{2}$ lbs.

SAFETY...

Bettors all
safety requirements!

The Aro Equipment Corporation, Bryan, Ohio
Offices in All Principal Cities

In Canada—Aro Equipment of Canada, Ltd., Toronto, Ont.

ARO

AIR HOIST

Also . . . Air Tools . . . Lubricating
Equipment . . . Aircraft Products . . .
Grease Fittings

The Aro Equipment Corporation, Bryan, Ohio

Please send full details on the new ARO Air Hoist, without obligation.

Name

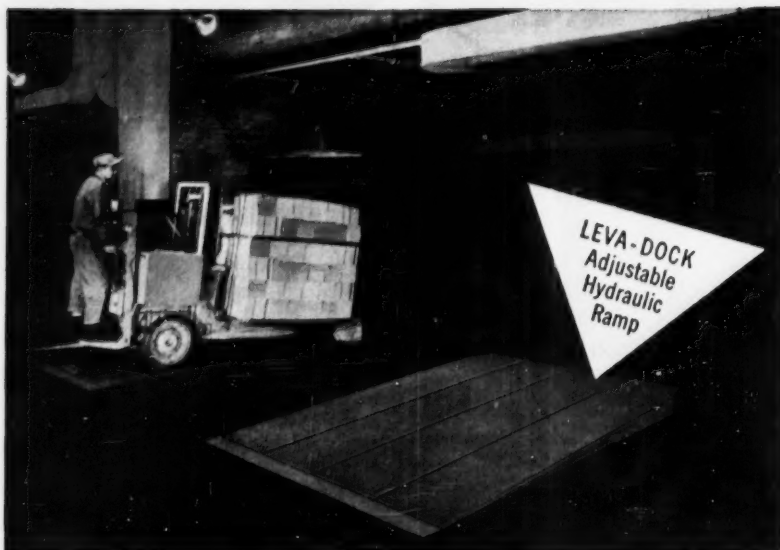
Company

Street

City State

Circle No. 16 on Reader Service Card for more information

New HYDRAULIC RAMP makes big savings at your loading docks



Moving Up or Down, the Leva-Dock Ramp keeps on the level with the truck or trailer bed. It compensates 4 ways for varying truck bed heights, out-of-level trucks, and truck spring deflection during loading and unloading.

Faster Handling • Less Breakage • Prevents Accidents

The Leva-Dock Ramp is a hinged platform positioned by a hydraulic jack. It fits into your loading dock as shown above. Four steel sections rest on truck or trailer bed and travel up or down as loading or unloading progresses.

The new Leva-Dock Ramp makes it possible to handle heavy loads in and out of trucks and trailers without using steel plates, bridge ramps or slow and expensive methods. The platform will support 20,000 lb. loads rolled backward

and forward, or from side to side. It becomes part of the loading dock floor when not in use. A new automatic safety device prevents accidents and costly, time consuming delays.

This rugged, self-contained unit has its electric power system and oil reservoir mounted right in the torque-tube frame. Installation is simple—operation is very inexpensive. Dependability is assured by Rotary's experience in building over 75,000 elevating devices.

For complete data, write

Rotary Lift Co., 1048 Kentucky, Memphis 2, Tenn.



LEVA-DOCK® RAMP

Rotary also makes: Levelator Lifts—Oilraulic Transfer Bridges—Freight, Sidewalk and Passenger Elevators—Automotive Lifts.

Circle No. 131 on Reader Service Card for more information

news from the
SALES FIELD

Randolph Metal Products Co. has announced the appointment of the **Don W. Kelsey Co.** as its Detroit distributor for **RanGuard** all steel corner pallet guard and the **Rantote 877** material handling tote boxes.

Two new district representatives have been appointed by the **Frank G. Hough Co.** to represent its line of Payloader tractor-shovels and tractors. **Jack C. Bever** will operate in the District of Columbia, Maryland, Virginia, West Virginia and the Carolinas. **Dwain Richey** has been assigned Arkansas, Oklahoma, Louisiana, Texas and New Mexico.

F. R. Schulz has been named field engineer in the Detroit area by the **Lamson Corp.** Schulz formerly was associated with Mechanical Handling Systems and the Palmer-Bee Co. in Detroit.

Several distributor appointments have been made by the **Baker-Raulang Co.** In Philadelphia, the **Baker-Lull Associates**, headed by **Thomas N. Parlon**, will service eastern Pennsylvania and southern New Jersey. Parlon is a former regional sales manager for **Yale & Towne Mfg. Co.** **Hohl Industrial Sales Co.**, an affiliate of the **Hohl Machine & Conveyor Co.**, will handle **Baker-Raulang** sales and service in the Buffalo area. **Frank J. Hohl** is president of the firm. The **A. & W. Engineering Co.** in Miami has been named by **Baker** to service the southern Florida region. **A. R. Fulton** heads the firm. In central Florida **The Chapman Machinery Co.**, head-

WEHLE HAMPER CONVEYOR



- *Lowers Overhead* - cuts labor costs down to a fraction of the cost required by other methods.
- *Speeds* - your operations.
- *All Steel* - construction.
- *Conveys Merchandise* - in hampers, crates, boxes, baskets with casters or wheels attached.



Manufactured in different lengths, widths, and capacities to meet your individual requirements.

Wehle Conveyor Co. also manufactures the famous floor-to-floor SPACE-SAVER all-steel conveyor.

Mail This Coupon

Learn how WEHLE CONVEYORS can produce maximum savings for you. Send for bulletin now.

WEHLE CONVEYOR CO.
201 Water St., Binghamton, N. Y.

Please send me bulletin describing your conveyors.

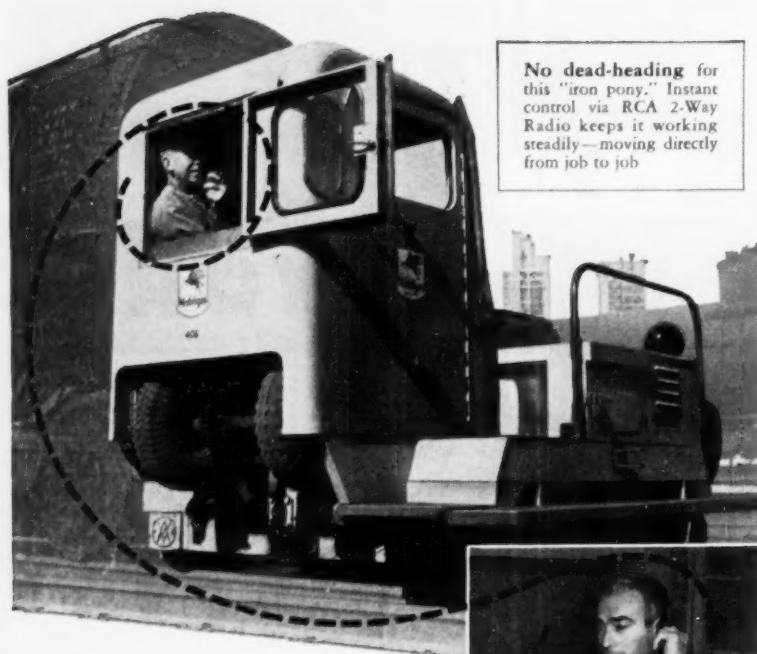
NAME.....
COMPANY.....
STREET.....
CITY..... STATE.....

**WEHLE
CONVEYOR COMPANY**

201-203 WATER STREET

BINGHAMTON, N. Y.

Circle No. 156 on Reader Service Card for more information



Make every load a payload... with RCA 2-way Radio

Equipment gives dispatcher instant, positive control...
100% coverage... in big Socony-Vacuum Refinery

Get instant contact with your materials handling equipment—move it where it's needed—*now*. That's the way the big Socony-Vacuum Refinery in Paulsboro, N. J. uses RCA 2-Way Radio to cut down empty runs—save expensive man and equipment hours.

"Radio is used on the trackmobile to locate the unit anywhere in the plant yard," the refinery reports. "In spite of all the steel structures there are no dead spots anywhere on the refinery ground. Reception is excellent.

"Considering the terrain and bumping around it takes, we get remarkably good operation," says the report—proof of how well RCA 2-Way Radio equipment stands up under punishment, and saves maintenance costs.

Look into RCA 2-Way Radio as an aid to efficient materials handling in your operation... *indoors or out. Mail coupon below for free booklet.*

And remember, only RCA can provide the nationwide service facilities of the RCA Service Company.



Small transmitter in dispatcher's office keeps him in direct contact with trackmobile and 13 other vehicles

SALES FIELD

Continued

ed by J. C. M. Chapman, has headquarters in Tampa. Located at Latham, N. Y., the Industrial Truck Sales, Inc. will represent Baker-Raulang in the western New York state area. Marshall L. Dreitzler heads the organization.

John J. Shand, southeastern regional sales manager for the Clark Equipment Co., has moved his headquarters from Norfolk, Va., to Atlanta, Ga., according to Walter E. Shirmer, Clark vice president. Shand's new business address is 161 Spring Street Bldg.

The appointment of L. M. Gay as manager of the Electric Storage Battery Company's Cleveland branch has been announced by Roland Whitehurst, vice president. Gay, formerly manager of Exide's Cincinnati branch, replaces W. P. Roche, who has been granted a leave of absence to regain his health. Gay has been with Exide since 1918 and has been Cincinnati branch manager since 1926.

Three more distributors for the Rapids-Standard Co. Inc., have become incorporated under the trade name, Rapistan. Sales outlets in Cleveland, Buffalo and Grand Rapids have taken the name, while another in Philadelphia is planning to assume the Rapistan identity.

Fred Stuart, general sales manager of the Basco Mfg. Co. has announced the appointment of four new distributors to handle the marketing of the firm's line of sheet metal separators. They are the Schlank-Savage Co. Inc., Harrison, N. J.; Clark Hopkins Equipment Co., Philadelphia; A. G. Cardineau & Co., Englewood, N. J.; and the J. W. Jackson Co., Cleveland.

Radio Corporation of America, Communications Equipment
Dept. 137V, Building 15-1, Camden, N. J.

- ☐ Please send me information on RCA 2-Way Radio
☐ Please have a representative get in touch with me.

NAME _____ TITLE _____

COMPANY _____ ADDRESS _____

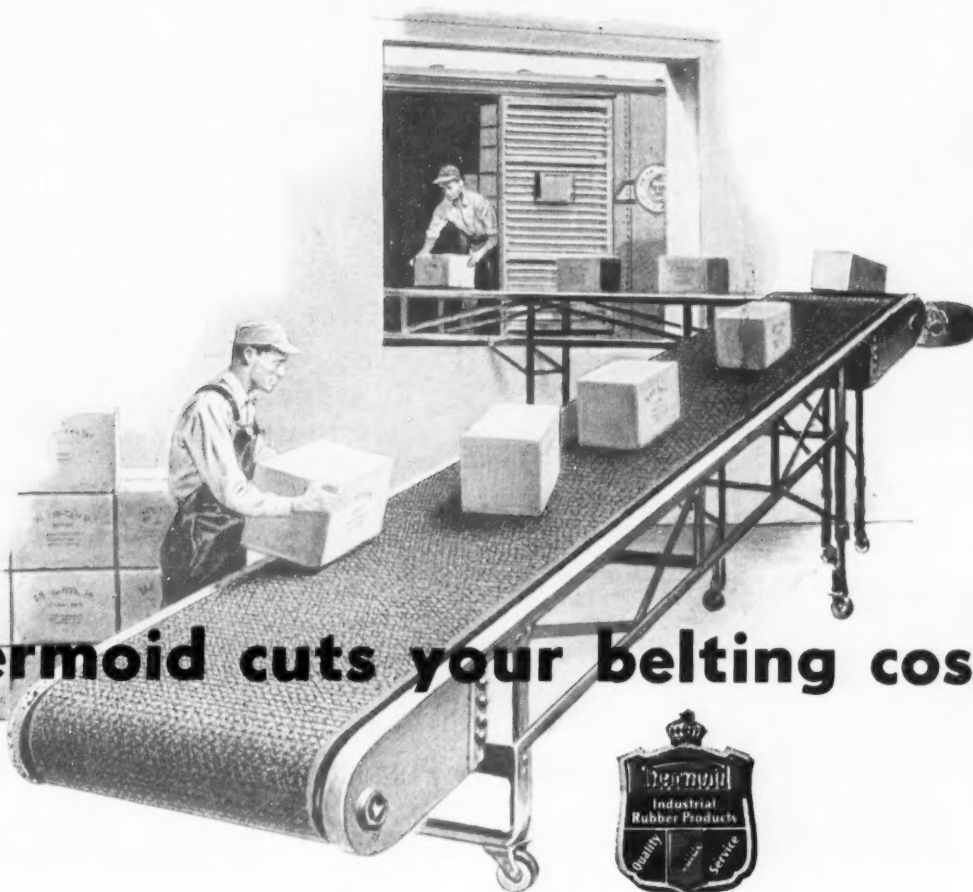
CITY _____ ZONE _____ STATE _____



RADIO CORPORATION of AMERICA
COMMUNICATIONS EQUIPMENT CAMDEN, N. J.

Circle No. 121 on Reader Service Card for more information

Thermoid cuts your belting costs



Regardless of the materials or products you handle, there's a Thermoid Conveyor Belt that will stay on the job longer . . . reduce down time.

The complete Thermoid line includes both standard belts for handling a wide variety of materials, and special types to meet specific requirements. Thermoid's special impregnation process welds carcass and cover into an

exceptionally strong, durable belt.

Your Thermoid Distributor can select the belt best suited to your needs. If your problem is unusual, he'll call an experienced Thermoid Sales Engineer.

If you prefer, write direct for Thermoid Conveyor Belting Catalog #3679, containing full engineering data.

HT For extreme abrasives such as quartz, granite, flint rock.	A For lesser abrasives such as cement, ashes, etc.	C For wood chips, gravel, etc. Ideal for portable conveyors.	NEOPRENE Oilproof. Resists abrasion and high heat.	CANNERS For handling fruit, vegetables. Acid resistant. Imparts no odor.	HH For high heat conditions other than oil. Withstands temperatures to 250° F.	THERMOGLAS Specially treated glass fabric carcass. Withstands temperatures to 350° F.	RUFF TOP Eliminates backslip of smooth articles on inclines to 35°.
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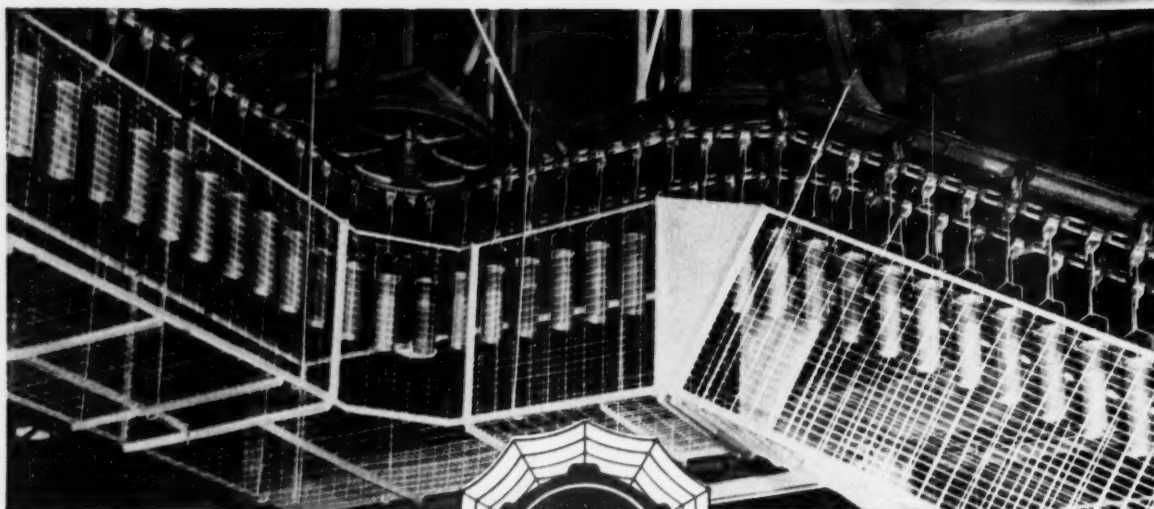
Thermoid

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

Circle No. 145 on Reader Service Card for more information



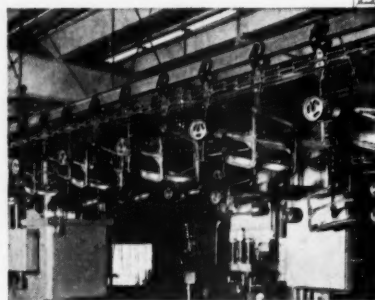
TROLLEY



CONVEYORS



- ✓ Cut Costs
- ✓ Increase Production
- ✓ Reduce Damage



FOR CIVILIAN or DEFENSE PRODUCTION

Webb Conveyors are the pioneering pacemakers for industry. They make possible modern, straight line production methods . . . as important in a civilian as a defense economy.

Shells or guns, automobiles or agricultural implements, stoves or refrigerators, whatever the product, Webb Trolley Conveyors are equally efficient in slashing handling costs. They also reduce handling damage and increase production while utilizing the same amount of floor space.

In reality, Webb Conveyors can be termed machine tools. For, conveyors make possible the operation of machines at their most efficient speed by continuously feeding work to production personnel and then automatically removing the finished product.

If lack of modern materials handling methods is tying up your production, why not call in a Webb sales engineer for his recommendations? No obligation.

Additional Webb Services—Through its subsidiaries, Control Engineering and Webb Forging Co., the Jervis B. Webb Co. designs and manufactures electronic and electrical controls for conveyors, machine tools, etc. Also quality drop forgings.

JERVIS B. WEBB CO.

Conveyor Engineers and Manufacturers

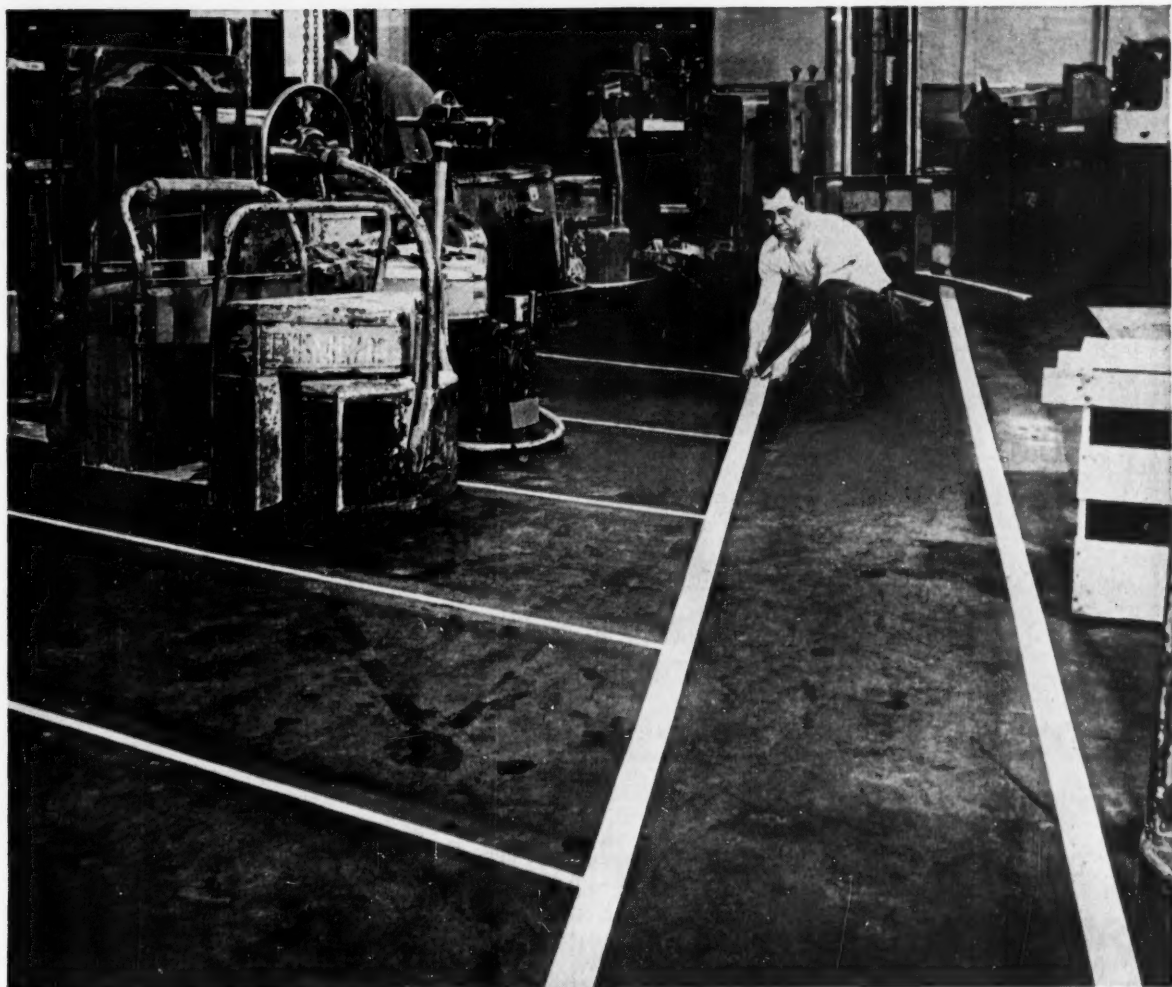
2938 ALPINE AVENUE • DETROIT 4, MICHIGAN

Send for fully illustrated catalog that provides complete information on Webb floor type conveyors.



OFFICES IN PRINCIPAL CITIES OF THE WESTERN HEMISPHERE AND LONDON, ENGLAND
 FACTORIES: DETROIT • LOS ANGELES • HAMILTON, ONTARIO

Circle No. 154 on Reader Service Card for more information



LANES ROLL ON DRY WHEN YOU SWITCH TO TAPE!

No interrupted schedules when you mark traffic lanes with colorful "Scotch" Plastic Tape No. 471. Just clean the floor, put it down and adhere firmly with a roller or wide-wheel truck. That's all there is to it. No special applicating equipment needed.

And because "Scotch" Plastic Tape No. 471 is so tough—so resistant to abrasion and scuffing, it actually lasts up to 5 times longer than conventional lane-marking materials. That means less maintenance,

lower cost in the long run with "Scotch" Plastic Tape.

Yet this remarkable tape can be easily removed for changing storage areas and danger zones.

A choice of 8 stand-out colors makes color-coding a cinch. Two-inch and 3-inch widths are most popular.

Your supplier can give you more facts—or write Minnesota Mining & Mfg. Co., Dept. F-113, St. Paul 6, Minnesota.



The term "Scotch" and the plaid design are registered trademarks for the more than 300 pressure-sensitive adhesive tapes made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y., Ia Canada: London, Ont., Can.



Circle No. 108 on Reader Service Card for more information

**Step Up
PRODUCTION**



with

ROURA Self-Dumping HOPPERS

 Only ROURA Has The Exclusive
PATENTED Instant Release Handle

Use Self-Dumping Containers

SAVE 50% LABOR-TIME

**SIMPLE • SAFE • SPEEDY
MATERIAL HANDLING**

Handling wet or dry, hot or cold, bulky materials quickly and easily, the ROURA is simple to operate—only one man is required for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Owens-Illinois Glass, Corning Glass, National Fireproofing, General Motors, Ford, Chrysler, American Brake Shoe, General Electric, Westinghouse, Western Electric, American Steel Foundries, International Harvester, John Deere, etc.

By a simple lift of the exclusive release handle, the ROURA HOPPER dumps, rights and locks itself securely. Sizes— $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

—Can Be Coated With Acid-Resistant Paints
Write today for detailed brochure, "In Dollars & Sense."

*Imitated by Many—
Not Equaled by Any*

ROURA IRON WORKS, Inc.
1411 Woodland Ave. Detroit 11, Mich.

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30

Highlights

of the month's news

SINCE 1893, inventors have been trying, without success, to perfect a method for moving humans by conveyor belt in large, over-crowded cities. And, over the years, the greatest problem facing big-city transit engineers became the creation of bottlenecks caused by stop and go, and batch loading, of large numbers of people during rush hours.

However, the inventors were stumped. As in the case of the steamboat, the automobile, and the airplane, there was a yawning gap between theory and reality. There were many proposals—numerous ideas that never quite made it past the artists' or engineer's drawing board. In the last few years, such proposals were made in New York, Cleveland, and other cities. Considerable doubt was voiced over whether conveyor belt human transit systems, a 60-year dream, would ever materialize.

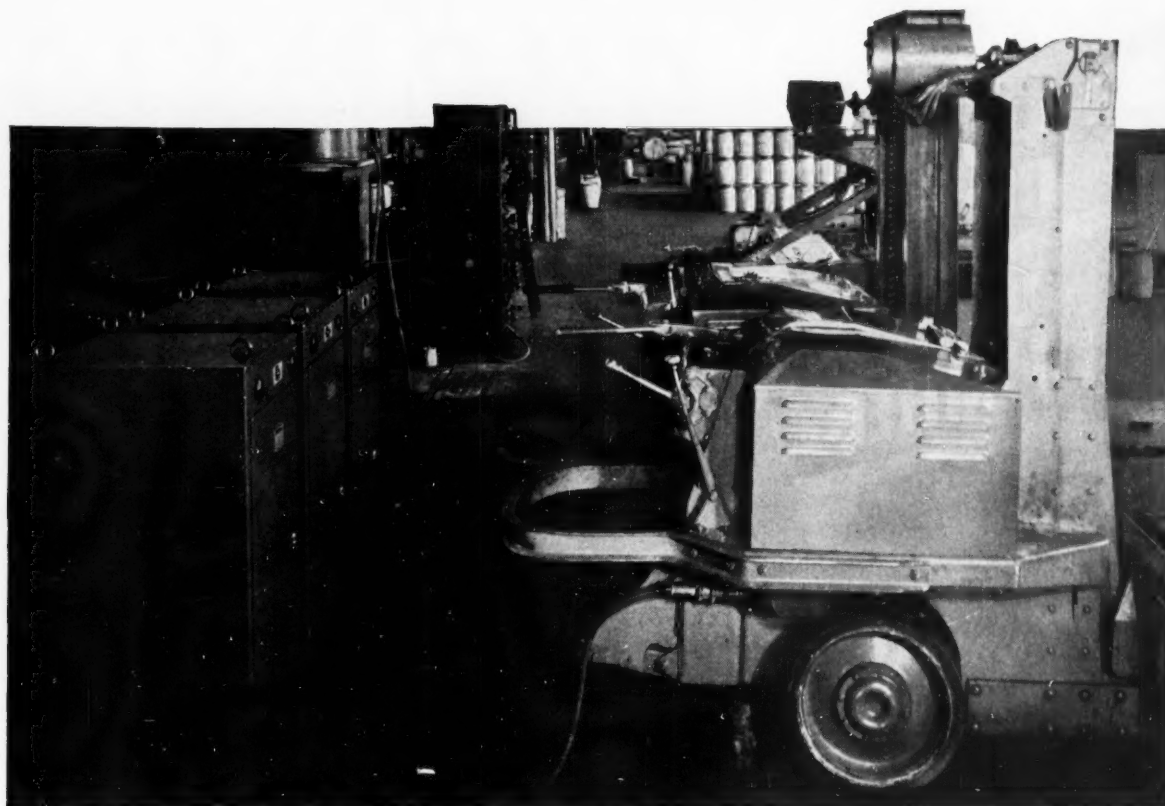
But now, we see where recent tests conducted with a nine-foot wide, 60-foot long passenger conveyor belt have proved that such systems are actually feasible. Design and belting engineers for Goodyear Tire & Rubber Company and Stephens-Adamson Manufacturing Company are said to have licked the problems of handling human cargoes.

The two companies have just completed exhaustive tests with men, women and children of all ages, including the physically handicapped, on an actual passenger conveyor belt system located in Stephens-Adamson's factory at Aurora, Ill. And, apparently, no difficulty is experienced by humans boarding a "moving sidewalk" traveling at one and one-half miles an hour. Furthermore, it is possible to accelerate and decelerate human cargoes safely and comfortably on this system.

With a nine-foot wide belt, 16,000 people an hour can be moved with no stopping, waiting or batching. Utilizing passenger cars on an adjacent belt moving at the same speed, with an accelerating system to 15 miles an hour, the same number of persons can be handled over a longer distance.

Analysis of the tests shows that a belt conveyor is the most efficient and least costly method of moving large numbers of people relatively short distances. A belt conveyor gives continuous, economical service 24 hours a day without costly time loss because of idle or empty equipment.

Designed primarily for tests on the proposed Goodyear-Stephens-Adamson passenger conveyor belt subway to replace New York City's Grand Central to Times Square shuttle, the test equipment has been used also for basic engineering studies on similar installations at many other known points in the world where a "no-stop" system is needed to move large numbers of people smoothly and safely.



How work-area charging increases truck availability

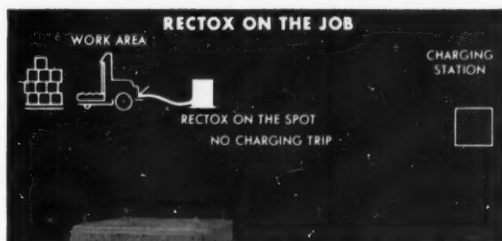
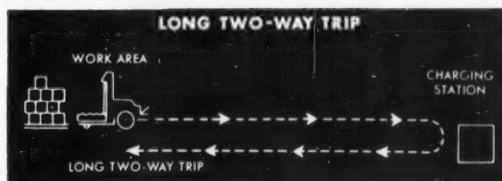
Those long, empty-truck runs to central charging stations are wasteful and unnecessary. Not only do they make your trucks unavailable in the work area, but they waste battery energy, time and man power.

The new Westinghouse Rectox® Chargers give *on-the-spot* charging—eliminate this needless waste. Rectox Chargers can be easily and quickly moved to the most strategic points in your plant. They will operate anywhere there's an a-c outlet, and will service both lead-acid or nickel alkaline batteries. Saturable reactors in Rectox Chargers provide smooth, easily made adjustment of output by variation in inductance, thus eliminating the losses inherent in resistor control.

Operation is simple! No taps to change. Takes but a flick of a switch to establish the type of charging cycle desired. With a twist of a dial, the charging rate is selected. All else is completely automatic.

Learn the many other construction and operational features of these industrial truck battery chargers by calling your Westinghouse Representative or writing Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21794

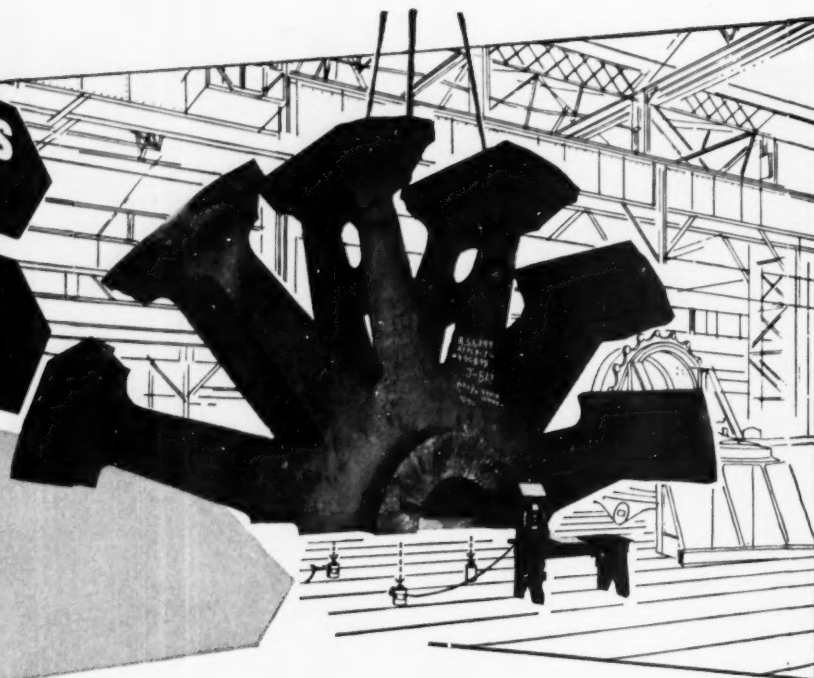
YOU CAN BE SURE...IF IT'S
Westinghouse



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**SR-4 DEVICES
IN INDUSTRY**

**USES
UNLIMITED**



THE PROBLEM

How to weigh large castings conveniently and accurately.

**THE BALDWIN
SOLUTION**

This 35 ton steel casting was easily weighed by placing three Baldwin SR-4 Load Cells under it.

Baldwin SR-4 devices enabled this large Eastern foundry to weigh faster and more accurately this huge semi-rotor, built for a Canadian hydro-electric plant. Three 50,000 pound SR-4 Type C Load Cells were used. Output of each of these cells ran to an SR-4 manual null-balance indicator. In this instance each cell was read separately and added together, while in other cases it might be preferable to use an SR-4 weighing system which electrically adds cell outputs.

Baldwin SR-4 devices have *uses unlimited* in industry . . . measuring load, pressure or torque economically, speedily and accurately. For the latest technical information please write to Dept. 3111, Baldwin-Lima-Hamilton Corp., Philadelphia 42, Pa.



TESTING HEADQUARTERS

BALDWIN-LIMA-HAMILTON

General Offices: Philadelphia 42, Pa. • Offices in Principal Cities

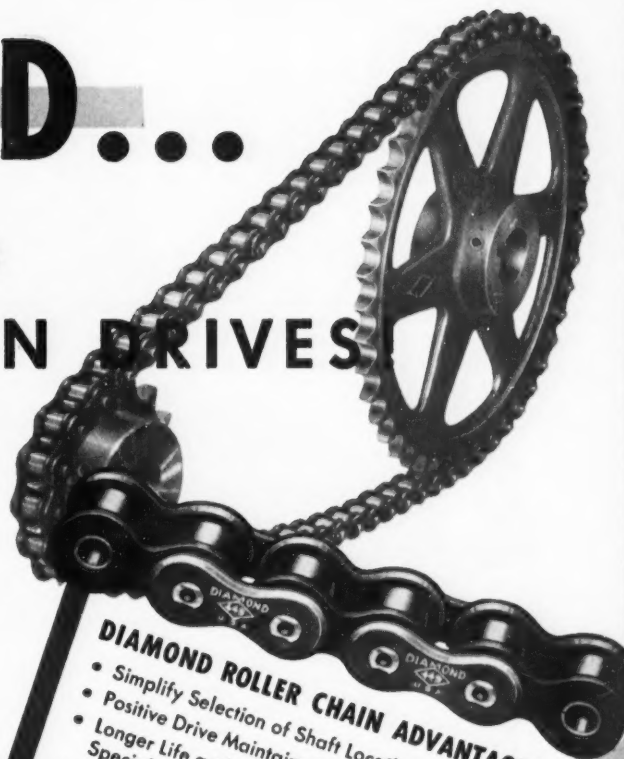
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DIAMOND...

Headquarters for

ROLLER CHAIN DRIVES

- A complete line of American Standard Roller Chain from $\frac{1}{4}$ " Pitch #25 through $2\frac{1}{2}$ " Pitch #200.
- A complete line of Roller Type Conveyor Chain from 1" Pitch through 4" Pitch.
- A complete line of Stock Sprockets for American Standard Roller Chain $\frac{1}{4}$ " Pitch through 2" Pitch to accommodate all popular shaft sizes and provide all desired speed ratios.
- A complete line of Flexible Shaft Couplings utilizing double strand roller chain engaging two sprocket halves stocked in all popular bores.

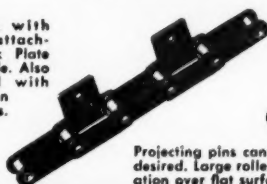


DIAMOND ROLLER CHAIN ADVANTAGES

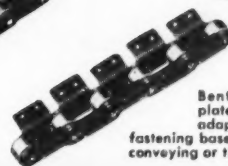
- Simplify Selection of Shaft Locations
- Positive Drive Maintains Speed Ratios
- Longer Life and Smoother Operation Assured by Special Pitch Hole Preparation
- Shot-Peened Since 1944 to Increase Fatigue Resistance

CONVEYOR CHAINS

Pin Link with straight attachment Link Plate on one side. Also furnished with plates on both sides.



Projecting pins can be spaced as desired. Large rollers allow operation over flat surfaces.



Bent attachment plates are highly adaptable as a fastening base for many conveying or timing devices.

SPROCKETS



Type A
Steel plate sprockets without hubs can be furnished plain, with drilled or tapped holes, counterbored or split.



Type B
Hub on one side of sprocket only.



Type C
Sprocket can be furnished with equal hub projection on each side, or with longer hub projection on one side than on the other.

FLEXIBLE COUPLINGS AND CASINGS



Diamond Couplings are all steel—two sprockets and a length of double strand high strength Diamond Roller Chain. Coupling absorbs shaft end-play and misalignment—is easy to connect or disconnect.

Type A Casing gives protection against abrasive dust and corrosive atmospheres. It provides for excellent lubrication, reduces maintenance and prevents lubrication throw-off.



Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND

DIAMOND CHAIN COMPANY, INC.



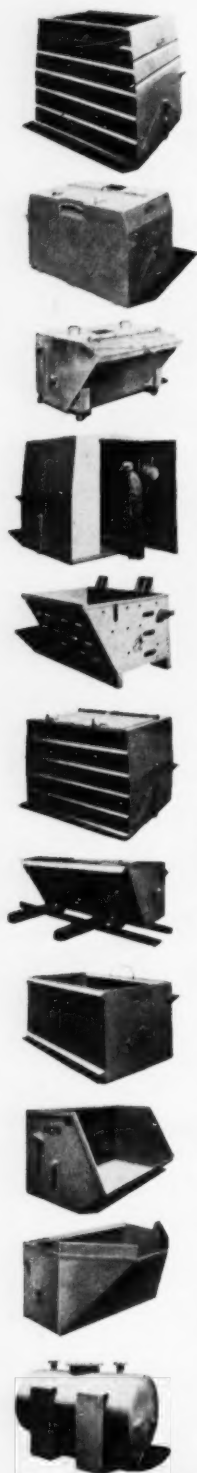
ROLLER CHAINS

Where High Quality is Tradition

Dept. 624, 682 Kentucky Avenue, Indianapolis, Indiana

Reader Service Card

Offices and Distributors in All Principal Cities



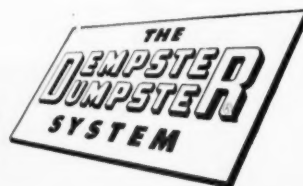
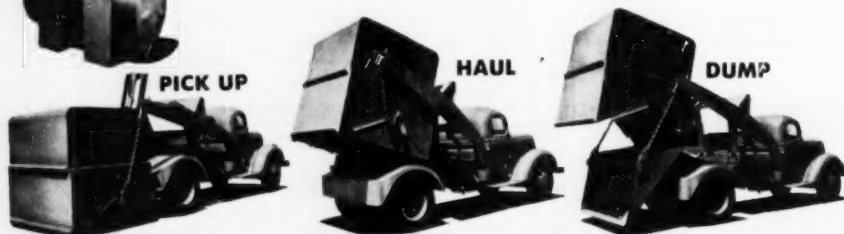
You will Dump High Costs, too..

... when you install the Dempster-Dumpster System of Bulk Materials Handling

Manufacturers over the nation have learned to eliminate the costly and inefficient method of handling bulk materials with conventional dump trucks, drivers and loading crews. You can equip one truck with a hydraulically operated Dempster-Dumpster. Then, inside or outside buildings at convenient accumulation points, you simply place detachable Dempster-Dumpster Containers, in capacities up to 4 times that of conventional dump truck bodies, with each designed to suit the materials to be handled—be they solids, liquids or dust . . . hot or cold . . . bulky, light or heavy. Containers shown at left, all handled

by one Dempster-Dumpster, are only a few of the many available or that can be built to meet your needs. The Dempster-Dumpster, operated by only one man, the driver, serves scores of containers . . . one after another, as shown below.

You eliminate trucks standing idle. You eliminate re-handling of materials. You eliminate loading crews. You increase efficiency, sanitation and good plantkeeping with this Dempster-Dumpster System—the lowest cost method of bulk materials handling ever devised. Write to us for complete information. Manufactured exclusively by Dempster Brothers, Inc.



DEMPSTER BROTHERS, 6113 Shea Bldg., Knoxville 17, Tenn.

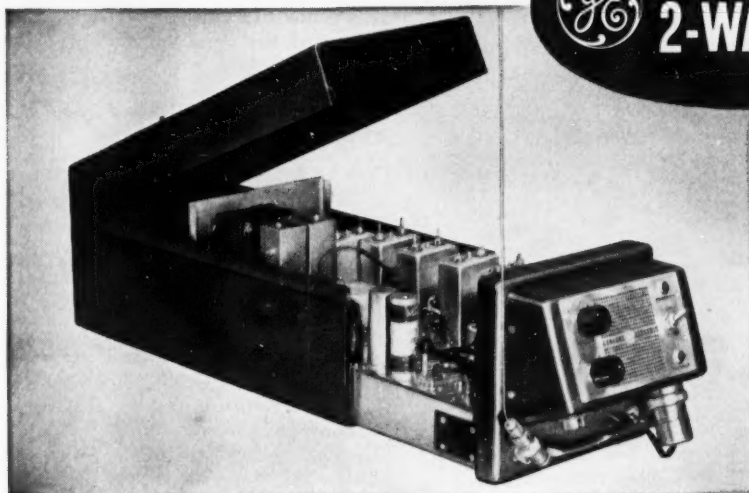
General Electric Announces a

NEW ADVANCED 2-WAY RADIO DESIGN



Low Power Industrial

2-WAY RADIO



Remove just 4 screws . . . control head is
dismounted for flexibility of application!

- ★ Lowest current drain in standard use today!
- ★ 6/12 . . . 28 to 40 . . . or 117 volt operation!
- ★ Mobile units are interchangeable with station equipment!
- ★ Adds multiple new applications!
- ★ Extremely compact!
- ★ Sensitive . . . selective . . . has clear, crisp audio!
- ★ General Electric engineered for the materials handling function!
- ★ Weather resistant!

THE basic intent behind General Electric development of this new mobile unit is to enhance the value of radio in your industry's operations. In it you see features that are head and shoulders above all other low power industrial radio equipment. With it your work will be performed faster and better *regardless of your business requirements!* Whether you want more miles of pipeline serviced . . . more crops harvested at the right market time . . . more emergencies avoided or solved . . . or more customers served . . . you will get more industrial productivity at lower cost than ever before. In these and many other fields G. E. has opened new, broader avenues of radio application! Investigate its advantages to you today!

YOUR CAS* MAN . . .

has complete information on the new LPI equipment. Take advantage of the service he offers at a local G-E office today or send us this coupon!

*Communications Advisory Service



General Electric Company, Section 32113
Electronics Park, Syracuse, New York

Please send me the new G-E LPI Radio literature
describing features and specifications.

NAME.....

COMPANY.....

ADDRESS.....

CITY..... STATE.....

GENERAL  ELECTRIC

Circle No. 59 on Reader Service Card for more information

Give your hand trucks a lift...

with C&D BATTERIES!



C&D
BATTERIES, INC.
of Conshohocken, Pa.

Manufacturers of Industrial Batteries Since 1888

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

They'll appreciate it by working longer, if you power them with C & D *Slyver-Clad** batteries.

With *Slyver-Clad* batteries, you get 20% more capacity in the same size tray! And, a C & D *Slyver-Clad* battery lasts longer and delivers maximum capacity to the very end of its life. The extra benefits obtained from C & D *Slyver-Clad* batteries are due to the Five-Fold method of insulation and retention which holds active material in place and virtually eliminates sedimentation and "shedding". Because less space is required for sediment, plates can be longer and heavier for that extra power lift. The next time you replace a hand truck battery—install C & D!

*TM Reg.

WRITE FOR SPECIFICATIONS!
For complete descriptions and specifications of C & D *Slyver-Clad* batteries, write for Bulletin IT-520.

Circle No. 28 on Reader Service Card for more information

MEN in the news

... at Allis-Chalmers Mfg. Co.

Arnold I. Thorsen, manager of the company's Norwood Works, has been appointed assistant director of manufacturing of the general machinery division, according to J. D. Greensward, division vice president and director of A. I. Thorsen manufacturing. Thorsen joined the company in 1926 and has been at Norwood for the past 12 years.



J. F. Costigan, assistant works manager at Norwood, has been promoted to replace Thorsen.

... at Minnesota Mining & Mfg. Co.

The election of Robert L. Westbee as vice president was announced recently by the board of directors. Westbee will head the company's new electrical products division. This new organization includes the electrical insulation and sound recording tape division, the Irvington Varnish & Insulator division, and the American Lava Corp., a wholly owned 3M subsidiary. Westbee has been with the firm since 1933.

... at Adolph Gottscho Inc.

Adolph Gottscho, founder and board chairman, was honored recently at a testimonial dinner given by company employees. The occasion marked both Mr. Gottscho's

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

**Secures tractor parts for long-distance hauling
... saves time and trouble for International Harvester**



STRAPPING ON A TRACTOR. When International Harvester ships crawler tractors on open railroad flatcars, Acme Steel Strapping ties tool boxes, lubrication equipment and seat cushions in place for the journey.



SOLE SUPPORT for these IH Diesel engines is one Acme Steelstrap per engine. It secures the engine to a pallet for easy handling.



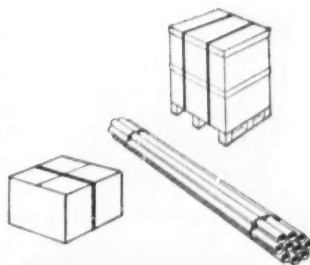
4,000 POUNDS of tractor dashboards are bundled together with Acme Steel Strapping for delivery from one International Harvester plant to another.

Whenever you receive anything secured with Acme Steel Strapping, you know that the shipper has taken care to get it to you safe. He has also beat the threat of damage-in-transit and has cut the cost of packing and shipping, too.

Acme Steel Strapping does all these things. It makes packing and loading easier and faster. It provides better protection during shipment, and

helps insure S.A. (Safe Arrival).

Almost certainly, Acme Steel Strapping or Acme Steel Stitching Wire methods can help somewhere in *your* operation. If you have any kind of a shipping or materials-handling problem, we may have just the idea you need. Write Acme Steel Products Division, Dept. F-113, ACME STEEL COMPANY, 2840 Archer Avenue, Chicago 8, Illinois.



**ACME
STEEL**

STRAP IT... STITCH IT... SHIP IT... SAFELY!

Circle No. 2 on Reader Service Card for more information

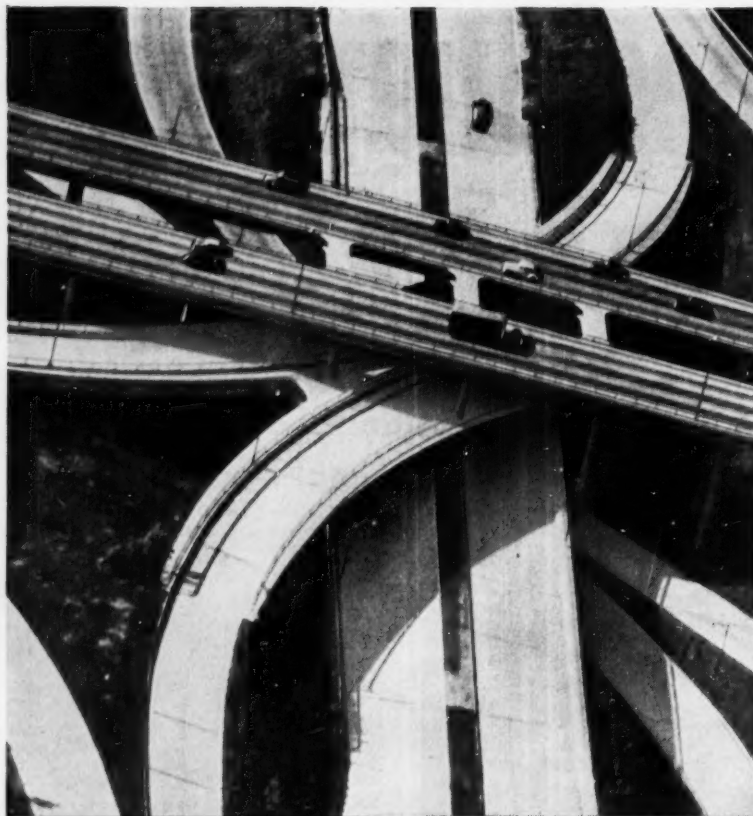


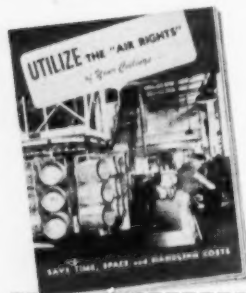
Photo courtesy of the California Division of Highways.

when you can't
SPREAD OUT, SPREAD UP!

... like the elevated super-highways all over the country. Eliminate expensive congestion of production traffic by taking to the air.

Lamson Engineered Overhead Trolley Conveyor Systems are daily providing the answer to progressive industry. For as with highway traffic, our engineering studies of individual plants problems often show the solution is overhead.

The answer to your problem may well lie in a Lamson Engineered Overhead Trolley Conveyor System. It costs nothing to find out...



Plants in Syracuse and San Francisco
Offices in principal cities



LAMSON CORPORATION • 1411 Lamson Street, Syracuse 1, N. Y.

Yes, I'd like to know more about Lamson Engineered Overhead Trolley Conveyor Systems. Please send me the 20-page engineering brochure, "Air Rights"...no obligation, of course.

Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____ 3329

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MEN IN THE NEWS

Continued

75th birthday anniversary and the 50th year of his company's operation. Presentation of a plaque was made by **Ralph DeMarco** and **Andy Seeger**, company employees with the longest length of service.

... at Thermoid Co.

A. K. Runkle has been named to the post of superintendent of the friction division. He has been with the company 20 years in all phases of friction manufacturing. He takes over the former duties of **Carl P. Brockway**, recently elected president of the company's subsidiary, **Asbestos Mfg. Co.**



A. K. Runkle

... at Richardson Scale Co.

Vice president **John P. Clifford**, a well-known authority in the automatic weighing industry, retired recently after nearly 50 years service with the company. He joined **Henry Richardson** in 1904 shortly after Richardson came to this country from England to start his firm.

... at Hewitt-Robins Inc.

Thomas Robins, who pioneered the development of the belt conveyor in 1891, was honored at a dinner marking his 85th birthday recently. Speaking at the affair, he predicted that the next 50 years would bring about considerably more rapid advancements in the conveyor industry than were witnessed in the past half century as a new era of mechanization develops.



CLARK UTILITRUCKS HANDLE THE TOUGHEST JOBS AT LEAST COST!

... they're engineered to satisfy driver, maintenance man, management

Here are the most advanced 6000-7000 lb. fork trucks on the market today—Clark's gas or electric UTILITRUCKS. Built to handle jobs that break the backs of less rugged trucks, these UTILITRUCKS have proved their superiority in foundries, steel mills, stevedoring* and heavy warehousing. They represent an ideal balance of essential engineering features. They get more work done at less cost, for these reasons:

1. Easier to drive—All controls at the driver's fingertips, like an automobile; compact and more maneuverable; shock-less steering; increased braking efficiency; 140 sq. inches additional visibility; 25 inches of free-lift; DYNATORK or HYDRATORK DRIVE available on gas model.

2. Easier to service—Complete accessibility for maintenance. On gas model: one-piece "zipper" hood folds back to expose engine; one-piece floorboard lifts up to expose

master cylinder and transmission; swing-out battery. All service points easy to reach.

3. Built to take punishment—Welded, integral-unit box frame eliminates distortion; higher inch-pound rating; axle-to-frame mounting absorbs shocks and strains; new design wheel and backing plate seals out dirt and abrasives. Oil bath air cleaner and oil filter standard on gas model. Totally-enclosed drive motor, sealed-for-life bearings on electric model.

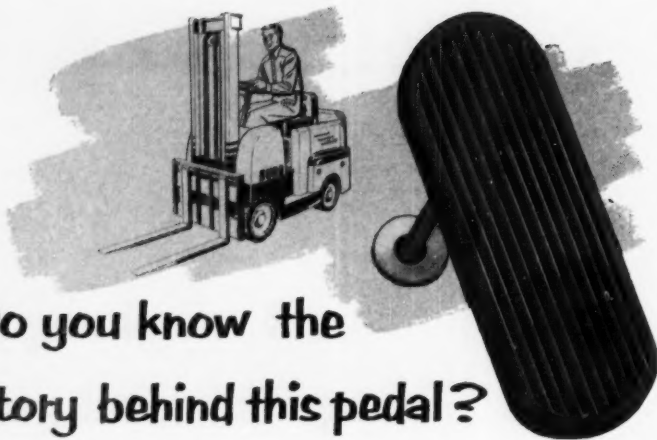
We invite you to compare the UTILITRUCKS to any 6000-7000 lb. truck on the market! Without obligation, you can discuss them with your nearby Clark dealer, listed in the Yellow Pages of your phone book. Or write us for free descriptive literature.

*Special stevedoring model available

**CLARK
EQUIPMENT**

Industrial Truck Division
CLARK EQUIPMENT COMPANY
Battle Creek 13, Michigan

Circle No. 34 on Reader Service Card for more information



Do you know the story behind this pedal?

An ordinary pedal you say, one you'll find on practically any type of lift truck. Right, it is the same old pedal *but* what it operates, what it does is where the difference lies. This pedal is on the floorboard of a Buda Lift Truck where it operates the new Buda Torque Converter. Ah, you're thinking, a torque converter is fine in a car, but . . . does it work as well in a lift truck? It does . . . better in many respects.

Lots of these Buda Torque Converters have been in operation for over a year now. Reports from users prove it to be the first truly successful torque converter ever used in a lift truck. Drivers like it because it's easier to operate. They use just two shifting positions, forward or reverse. There's no constant clutch riding or unnecessary shifting to tire them out. It gives them smoother acceleration, more positive truck control . . . actually lets them do more work, with less effort, than ever before.

The Buda Hydraulic Torque Converter automatically multiplies full engine torque through an oil cushion and then delivers it to the drive wheels in exactly the right amount. This means you get extremely smooth power flow whether starting, humping or climbing a steep incline . . . and without overloading the engine, even at low speeds. It means that clutch riding is a thing of the past . . . that now, loads can be literally "inched" into position.

And for those who pay the bills, the Buda Torque Converter comes as a welcome economy. With no external piping, no costly sealing devices—it's easy to maintain, easily accessible. Clutch wear is reduced to the minimum so that clutch life increases as much as six to ten times. Engine life rises almost 50% . . . transmission life increases 400% . . . differential life increases over 90% . . . fuel consumption drops substantially. Torque Converters are available on all model Buda Lift Trucks, 3000 to 7500 pound capacity and can be installed on the same capacity Buda Trucks now in the field.

The Buda Torque Converter has proved its merit. You can prove it to yourself by test driving a Buda Lift Truck equipped with torque converter at your local Buda Distributor. Do it before you buy any type of lift truck.

FREE BOOK—

gives complete information on Buda Torque Converter and other outstanding Lift Truck features. Send for your copy today!

BUDA
THE BUDA COMPANY, HARVEY, ILLINOIS

Circle No. 26 on Reader Service Card for more information

MEN IN THE NEWS

Continued

. . . at Yale & Towne Mfg. Co.

Company vice president Philip B. Niles has announced the appointment of Robert M. Whitney to the newly created position of manager of national advertising and promotion. Whitney, a former sales



R. M. Whitney manager for the Automatic Transportation Co. division, will supervise Yale & Towne's corporate advertising program and will coordinate all divisional advertising and promotion from the company's New York executive offices. He joined Automatic in 1936 and has directed advertising for that division since 1945.

. . . at Ainsworth Mfg. Co.

The appointment of Robert E. Dickson as director of purchasing has been announced by Warren H. Farr, president and general manager. Dickson is well-known in Detroit procurement circles, and joins Ainsworth after serving 16 years with Burroughs Corp. Prior to that he was with Fisher Body, Western Electric, Revere Copper & Brass and Bohn Aluminum.

. . . at Caterpillar Tractor Co.

Claiming long and faithful service for their machines, executives of the company exemplify that same policy in their own length of service. L. B. Neumiller, president, has been with the firm 38 years. H. S. Eberhard, executive vice president, joined the company 37 years ago; J. R. Munro, director of manufacturing, has been with Caterpillar 35 years, and Ralph Morgan, executive assistant, 25 years.

(Continued on page 116)



BOTTLER ENDS BOTTLENECK

with dependable

EDISON batteries

HEAVIEST WORK comes at day's end for an eastern bottler of one of the country's most popular soft drinks. After batteries have been powering fork trucks all day serving bottling machinery, fifty highway delivery trucks must be unloaded and re-loaded.

POWER TO SPARE for this big shift-end job is provided by dependable EDISON batteries. In twelve minutes, one man and a fork truck unload and re-load a delivery truck—a job that formerly took four men twenty minutes.

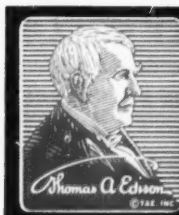
BEFORE RECHARGING, batteries have sometimes remained in service nearly sixteen hours continuously. Spare batteries are used only when operations continue far beyond an eight hour shift. Further, the ability of EDISON batteries to take a quick boost-charge during

lunch hour has been a big factor during the busy season.

ON ALL COUNTS—dependable power through extra hours and extra years . . . lower maintenance cost . . . less downtime—EDISON batteries are best for your job. Electrically, they're practically foolproof. Their steel cells make them practically indestructible. Have your Edison field engineer survey *your* battery needs. Send for Bulletin S.B. 2039 and S.B. 3808 for detailed information. Edison Storage Battery Division of Thomas A. Edison Incorporated, West Orange, N. J.



Most Dependable Power
—Lowest Over-all Cost
... you get both with an EDISON



EDISON
Nickel · Iron · Alkaline
STORAGE BATTERIES

Circle No. 48 on Reader Service Card for more information

NEW

4-WHEEL DRIVE

Shovel loader

WORKS where other Loaders FAIL!



● This powerful new Shovel loader is designed and built for **HEAVY** work under the toughest conditions. Outstanding features—many of them exclusive—permit top capacity performance in extremely rough terrain, where other units falter and fail . . . Power from the heavy-duty gas or diesel engine is applied through positive 4-wheel drive, 5-speed transmission, forward and reverse . . . Positive 25" downcrowd, bucket width completely covering wheel tread, and operator control of tilt in any position, provide maximum digging and stripping effectiveness. Operator's position insures maximum visibility and safety.

Equipped with 1½ cu. yd. bucket as standard. Also available: 1¼ yard heavy duty and 2½ yard light material buckets, pallet forks, backfill blades and crane hook attachments.

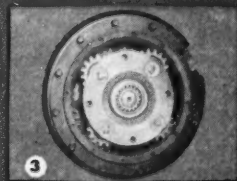
Write for eight-page illustrated Bulletin AD-55, containing complete description and specifications.

1. Rear axle oscillates 23" about longitudinal axis for maximum ground pressure on all four wheels at all times. Hi-flotation type tires permit operation in soft or rough ground.

2. Positive 4-wheel, 5-speed transmission, and 100-inch wheelbase enable unit to negotiate steep earth banks, ramps or obstructions. Hydraulic power steer. Front or rear wheel steer optional. 4-wheel steer available.

3. 3 to 1 Planetary gear reduction in each of four wheels reduces torque 300% in axle shafts, gear case and drive shaft to prevent axle and drive line failure. 4 Planetary gears distribute load evenly to wheel-ring gears.

4. Unobstructed visibility enabling operator to see bucket in lowered position, increases safety and performance. Hydraulic arm-type loader has parallelogram action, with position lift and tilt controls.



Baker Lull

handling equipment

THE BAKER-LULL CORP.

Formerly the Lull Manufacturing Company
346 WEST 90th ST., MINNEAPOLIS 20, MINN.
A Subsidiary of the Baker-Raulang Co., Cleveland 2, Ohio

Circle No. 17 on Reader Service Card for more information

FLOW • NOVEMBER, 1953

What's

NEW in equipment

Heavy Duty Undercarriage

A new heavy duty undercarriage specifically designed to provide a solid foundation to withstand the stresses of crane operation is being built by Unit Crane & Shovel Corporation for its Model 1520 self-propelled mobile crane. The crane is rated $\frac{3}{4}$ yard with a lifting capacity up to 20 tons. Incorporated in the undercarriage is a double-beam arrangement of the walking beam principle which is said to provide maximum support for the wheel spindles.

Circle No. 176 on Reader Service Card for more information



Hydraulic Scoop Attachment

A hydraulic scoop attachment which provides controlled dumping at any desired discharge rate and at any elevation up to the maximum lift height of the truck is now available from The Yale & Towne Manufacturing Company. According to the manufacturer, the scoop can be quickly attached to or removed from any Yale fork truck and provides an easy way of picking up, transporting and dumping free-flowing bulk materials. Actuated by a double acting cylinder, and with truck uprights vertical, it provides a 38-degree dumping angle down from the horizontal together with a 37-degree backward angle for handling loads without spillage.

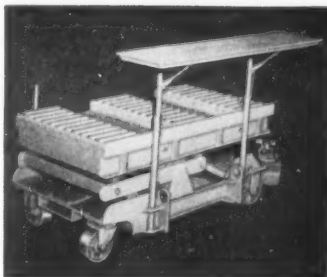
Circle No. 177 on Reader Service Card for more information



Sheet Feeding Table

This sheet feeding table manufactured by The Raymond Corporation is said to maintain sufficient stock to keep a steady flow of strip steel through a punch press by adapting a roller top and a special feed shelf. The table has a capacity of 5 tons. It is mounted on large casters so that it can be moved into accurate position, and it is fitted with crane lugs so that it can be moved by overhead crane. The feeding shelf has pin adjustments so it can be used with presses having different bed heights.

Circle No. 178 on Reader Service Card for more information

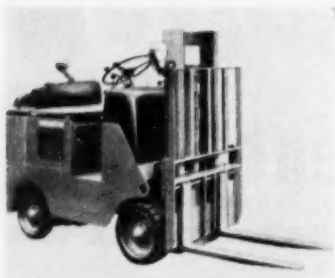


New 7500 Pound Trucks

The Buda Company has announced the development of two new 7500-pound capacity fork lift trucks, models FT75-24 (gasoline) and FTD75-25 (diesel). The trucks are available in all standard lift heights—72 inches, 84 inches, 108 inches and 114 inches. The overall length (less forks) of the trucks is 100½ inches, with a wheel base of 60 inches. The width is 42 inches. The units are designed so they can turn in a 77¼-inch intersecting aisle.

Circle No. 179 on Reader Service Card for more information





Lighting Combinations for Trucks

A selection of lighting combinations for all Towmotor fork lift trucks and tractors is now offered optionally as original equipment by Towmotor Corporation. Increased outdoor uses of lift trucks and of extra work shifts are said to have resulted in numerous requests for such lighting equipment. Floodlights, tail-lights and stop-lights have been made available in varied arrangements to meet individual requirements. In addition, single-switch or multi-switch controls can be furnished.

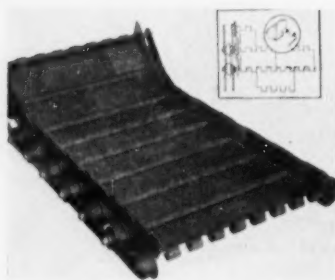
Circle No. 180 on Reader Service Card for more information



Battery-Operated Hoists

Shaw-Box Crane & Hoist Division of Manning, Maxwell & Moore, Inc., has announced a new line of battery-operated "Budgit" electric hoists developed especially for mounting on trucks to make available "on-the-spot" lifting wherever the truck happens to be. They may be installed on trucks equipped with a 6-volt electrical system by adding another 6 volt battery. The hoists are said to draw little current from the battery, and normal operation of the truck keeps the battery charged. They are available in capacities of 1000, 2000 and 4000 pounds.

Circle No. 181 on Reader Service Card for more information



Redesigned Hinged Steel Belt

May-Fran Engineering, Inc., has announced that standard component links of May-Fran hinged steel belt have been redesigned to incorporate four interlocking flanges on each side of the link. This arrangement is said to provide a greater distribution of stress on the belt and also allows links to be staggered, thereby eliminating lateral movement between the individual links and minimizing fall-through of scrap. All links can be furnished solid or with perforations which permit the drainage of coolants and other solutions.

Circle No. 182 on Reader Service Card for more information



Small Parts Storage Unit

Manufactured by The Union Metal Manufacturing Company, this unit, known as the Vu-O-Matic Rotary Stand, is designed and sized especially for storing a broad range of small parts in industrial and commercial maintenance, service and repair departments. The stand is comprised of circular, rotating trays containing transparent storage jars. Shown here are three 8-tray units, providing storage for 198 different items, while occupying a space only 36 inches wide by 33½ inches high by 12 inches deep.

Circle No. 183 on Reader Service Card for more information

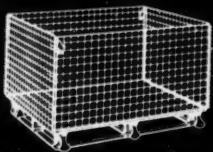


Revolving Crane Truck

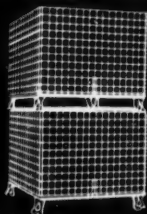
Market Forge Company has added this revolving crane truck to its Loadmobile line. The unit was developed originally to use in rubber tire manufacturing, where it removes molds from tire molding machines and replaces them again. It has a capacity of 2000 pounds and an overall height of 68 inches. Its hook, which is 60 inches high when raised and 10 inches when lowered, projects 24 inches over either side of the truck and is raised and lowered by power.

Circle No. 184 on Reader Service Card for more information

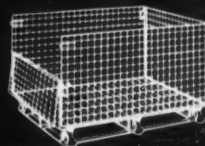
(Continued on page 144)



STANDARD PALLETAINER for foundry, pressroom, assembly line, any shipping job. Reinforced electro-welded steel rod construction. 2" mesh. 2,000, 4,000 and 6,000 lb. capacities.



HI-LODE PALLETAINERS can be loaded to overflowing, still stack safely. Note how space between units accommodates extra-capacity loads.



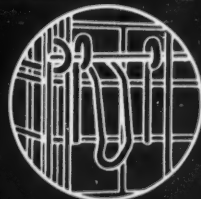
WAREHOUSE PALLETAINER features hinged end so contents are accessible even when units are stacked. High visibility cuts inventory time.



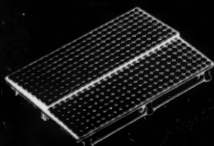
NEW MALLEABLE IRON LEGS have wide throat for fast, safe stacking. Welded base construction for practically indestructible support.



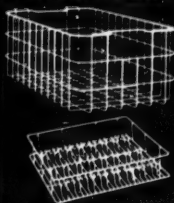
THIS SEAL on any handling unit means you can expect long service under tough conditions, at consistently low cost to you.



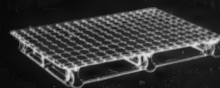
NEW LOCKING DEVICE on all Palletainers holds sides securely, cannot be released accidentally or lost in shipment.



ALL PALLETAINERS FOLD to 1 1/2 height when empty . . . five in the space of one to cut shipping costs on return trips.



USP HANDLING BASKETS in wide range of sizes, types, weights and finishes. Electro-welded construction for years of service.



WELDED WIRE PALLETS in standard and heavy duty models. Extra strong, durable, light and easily stackable with malleable iron or reinforced formed steel legs.

YOU WIN ALL WAYS with Union Steel handling units

A materials handling unit by USP will give you service and then some! Whether it's a Palletainer, a pallet or one of our many styles of baskets, you'll find the famous electro-welded construction is mighty easy to handle but hard to beat for long life on the job. Give us an idea of the problem you have and let us show you how economically our handling units can solve it. We'd like to help you . . . now!

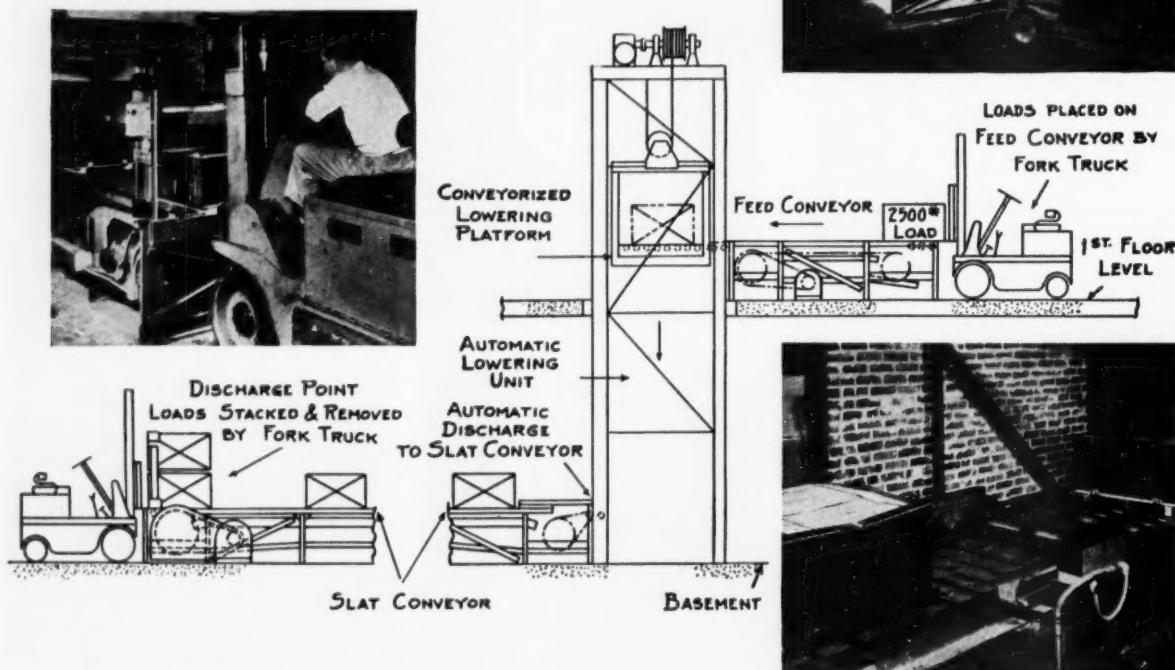
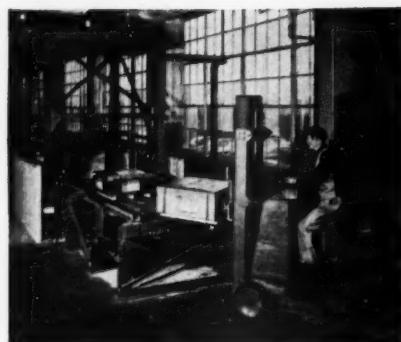
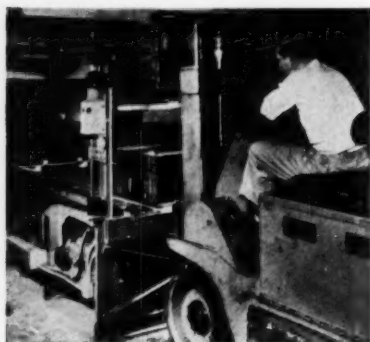


UNION STEEL PRODUCTS COMPANY
1903 • Our Golden Anniversary • 1953
ALBION, MICHIGAN

Circle No. 152 on Reader Service Card for more information

only through *Engineering*
can *Efficiency* be achieved...
up **87½%**

for department of a
LARGE EASTERN CAN COMPANY*



Like many foresighted manufacturing companies of today, this large eastern can manufacturing company, is constantly aware of in-plant materials handling as a major operating cost. The diagram and pictures present Gifford-Wood's solution to their problem of handling materials to storage. Long, empty return runs of the fork trucks used was only one aspect of the previous method of operation which was unduly expensive. Through the new G-W System, 2500-lb. bundles of steel sheets which formerly required eight hours to unload and store are now handled in one!

Working with Wigton-Abbott Corporation, Con-

sulting Engineers, Gifford-Wood applied the materials handling knowledge for the solution of a costly problem—and this is only typical of many such engineered installations. All elements of such an installation (length of horizontal conveyor travel, raising or lowering to floors above or below, etc.) are, of course, designed to best suit the particular conditions encountered.

The G-W Materials Handling Engineer in your area will be glad to discuss the most economical means of materials flow in your plant. Call on him—it may well be the first step toward higher profits through lower operating and maintenance costs.

* Company name available on request.

GIFFORD-WOOD Co.

Since 1814 • Hudson, New York

NEW YORK 17, N. Y.
420 LEXINGTON AVE.

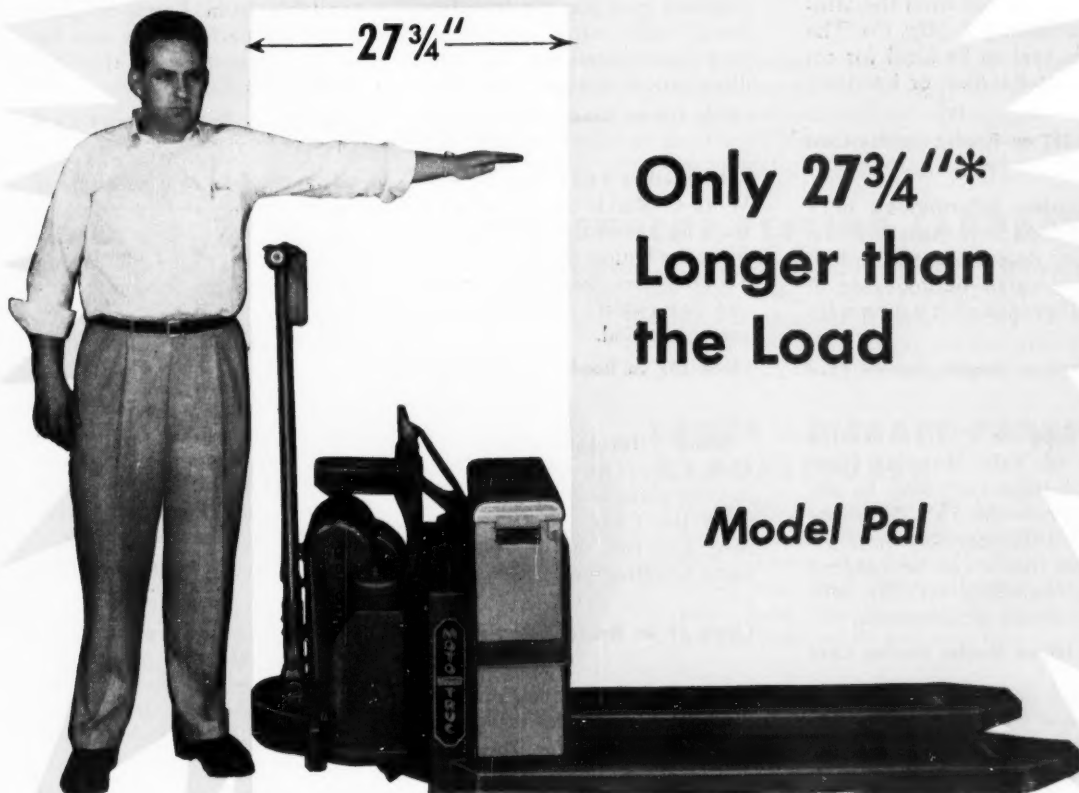
ST. LOUIS 1, MO.
RAILWAY EXCHANGE BLDG.

CHICAGO 6, ILL.
565 W. WASHINGTON ST.

When you think of materials handling—Think of Gifford-Wood
Circle No. 62 on Reader Service Card for more information

Ⓜ 3187

All the **POWER** *You Want*
In an **ARMS LENGTH**



Only 27³/₄"*
Longer than
the Load

Model Pal

Think of it—in only 27" is packed the complete power unit for the "Walkie" type lift truck. *Other models are only 23³/₄" . . . That's space efficiency . . . plus!

If you have a material handling problem that requires minimum "operation area", ask about the "Walkie" MOTO-TRUC. Its application in close areas is making history every day . . . write for complete information on all the advantages of MOTO-TRUC.

The MOTO-TRUC Co
Representatives in Principal Cities

1955 E. 59th St. • Cleveland 3, Ohio
Pallet . . . Platform . . . Hi-Lift Trucks
LARGEST EXCLUSIVE MANUFACTURER
OF "WALKIES"



Circle No. 111 on Reader Service Card for more information

Literature

featured in this month's advertisements

Information and samples of "Scotch" brand filament tapes may be obtained from the Minnesota Mining & Mfg. Co. The tape is said to be ideal for reinforcing, banding or bundling tasks.

Circle 107 on Reader Service Card

Complete information may be obtained from Austin-Western Co. describing the unlimited indoor or outdoor use of its self-propelled hydraulic crane.

Circle 13 on Reader Service Card

A copy of "The Picture Story of Yale Material Handling Equipment" may be obtained from the Yale & Towne Mfg. Co. It describes how industrial trucks can be adapted to any handling task by utilizing various attachments.

Circle 160 on Reader Service Card

A new booklet may be obtained from the Buda Co. giving complete details on the Buda torque converter and other features of the company's lift truck line.

Circle 26 on Reader Service Card

How to facilitate industrial truck battery charging operations right in the normal work area is explained in literature available from the Westinghouse Electric Corp. Out-of-the-way charging stations are said to be obsolete because they increase truck down-time.

Circle 133 on Reader Service Card

You can write for more information or have a Motorola engineer give you the complete 2-way radio story and show how it can speed material handling orders in your own plant.

Circle 110 on Reader Service Card

Literature telling about Work-O-Matic multi-duty trays is currently available from the Union Metal Mfg. Co. Troublesome sheerings, tubing and bar cutoffs are said to be easily handled.

Circle 151 on Reader Service Card

More information and possibly a NesTier demonstration in your plant may be requested from the Chas. Wm. Doepke Mfg. Co., Inc., wherever small parts handling looms as a problem.

Circle 47 on Reader Service Card

Literature on the Wright-Hibbard highlift platform truck may be obtained from the manufacturer, Wright-Hibbard Industrial Electric Truck Co. Capacities up to 4000 pounds available with platform sizes to suit any need.

Circle 159 on Reader Service Card

A bulletin describing the Space-Saver conveyor may be obtained from the Wehle Conveyor Co. Its all-steel construction lends itself to movement of materials in hampers, crates, boxes and even castered or wheel containers.

Circle 156 on Reader Service Card

Proof folders and electric truck comparison charts are available from Lewis-Shepard providing performance data for its complete line of electric Walkie trucks.

Circle 85 on Reader Service Card

Inexpensive equipment for heavy lifting and moving is described in literature available from Manzel, Inc. concerning its complete line of mobile floor cranes.

Circle 96 on Reader Service Card

Detailed descriptive literature may be obtained from the Clark Equipment Co. on its 6000-7000 pound Utilitruc with Dynatork or Hydratork Drive on gasoline powered models.

Circle 34 on Reader Service Card

Literature and services of material handling engineers may be requested from the Jarvis B. Webb Co. in seeking recommendations for efficient overhead conveying systems.

Circle 154 on Reader Service Card

Requests for LPI radio literature will be honored by the General Electric Co. in describing its low power industrial two-way radio system.

Circle 59 on Reader Service Card

Complete descriptions and specifications of Slyver-Clad industrial batteries are included in Bulletin IT-520 available from C & D Batteries, Inc.

Circle 28 on Reader Service Card

ACTUAL FIELD TESTS PROVE THE BAKER

gas-O-matic
TRADE MARK

40·40·50* Story!

When first results came in from pilot model field tests of the Baker Gas-O-Matic, even our engineers who designed the truck found them hard to believe. But further tests substantiated the figures and proved that the Gas-O-Matic is setting new standards of fork truck operating economy. Here are a few of the results:

INDEPENDENT TESTING LABORATORY

Gas-O-Matic operated 45 days in warehouse with railroad siding and truck dock. Loads were heavy and bulky — overloading was common. During 206 hrs., 56 min. of actual operation, truck consumed only 90 gallons of gas. Maintenance was negligible.

LARGE AIRCRAFT PARTS MANUFACTURER

Gas-O-Matic operated 219 hours during 30-day period. Total gas consumption only 85.6 gallons — an average of 0.39 gal. per hr. Truck provided 98% availability. Maintenance man reported it was the finest truck for maintenance he had ever had.

FOUR LARGE RAILROAD OPERATORS

Gas-O-Matic used at RR dock terminals, in and out of lighters, up and down ramps, inside and outdoors. Exceptional fuel economy reported. No maintenance difficulties. Operators were impressed with accurate inching properties, maneuverability and excellent operation on ramps.

* **gas-O-matic**

uses 40% less fuel, costs 40% less to maintain and gives you 50% longer life than conventional gas trucks.

Get the complete story from your Baker representative or write us direct.

THE BAKER-RAULANG COMPANY
1219 WEST 80th STREET • CLEVELAND 2, OHIO

*The Baker-Lull Corporation, Subsidiary, Minneapolis, Minnesota
Material Handling and Construction Equipment*

Baker

industrial trucks

Circle No. 19 on Reader Service Card for more information

AD LITERATURE

Continued

Information on a fork truck lease plan may be obtained from Automatic Transportation Co. It's entitled, "Earn Its Own Way," and explains a program providing for lease arrangements from two to five years or two to nine years, depending upon the type of equipment.

Circle 14 on Reader Service Card

Information about a free trial offer may be obtained from the Market Forge Co. pertaining to its heavy duty skid lift truck. Various models have capacities up to 10,000 pounds.

Circle 98 on Reader Service Card

A descriptive folder covering skid boxes, stacking boxes and box trucks may be obtained from the G. B. Lewis Co. They can be handled in multiples and stacked ceiling-high.

Circle 89 on Reader Service Card

A new bulletin describing the 710 Dolly and the 725 Roller Ramp, as well as numerous other pallet dollies may be obtained upon request from the Samuel Olson Mfg. Co., Inc.

Circle 99 on Reader Service Card

Descriptive literature covering the complete selection of roller chains and sprockets for various conveyor drives or other applications may be obtained from the Diamond Chain Co.

Circle 10 on Reader Service Card

Bulletin C-1 is available from the American Monorail Co. providing all the facts about cost saving and increased production advantages of its Monorail handling system.

Circle 8 on Reader Service Card

Information offering comparisons of greater traction, longer wear and softer ride are contained in literature available from the United States Rubber Co. about its Innacush solid rubber tire.

Circle 149 on Reader Service Card

Radio Corp. of America has full details available on its RCA 2-way radio equipment which provides 100 per cent coverage of all handling operations in and around your plant.

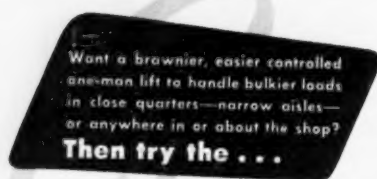
Circle 121 on Reader Service Card

Details of the Flex-A-Switch remote or manual controlled conveyor section may be obtained from the Metzgar Co. The Flex-A-Switch permits threeway travel—left, right or straight through.

Circle 104 on Reader Service Card

An illustrated folder explaining the advantages of Mead Chestnut Poke-Pak may be obtained from the Mead Board Sales Co. Poke-Pak is said to be so inexpensive as a pallet, it can be discarded after use.

Circle 100 on Reader Service Card



Want a brawnier, easier controlled one-man lift to handle bulkier loads in close quarters—narrow aisles—or anywhere in or about the shop?

Then try the . . .

Stronger, fabricated construction . . . Floor level loading . . . Adjustable forks in range of lengths . . . Rear swivel casters for extra maneuverability . . . Hand lever safety brakes . . . Straddle-type base in various widths . . . Remote control (on battery models) to use lift as a portable elevator . . . Many other features.

*BIG JOE

PEDAL OR BATTERY OPERATED HYDRAULIC LIFTS

STEP-ON-IT UNITS

Capacity 750 lbs. Lifting heights to 68". Pedal control. Priced from . . .

\$28150

(Other Models from \$236.50)

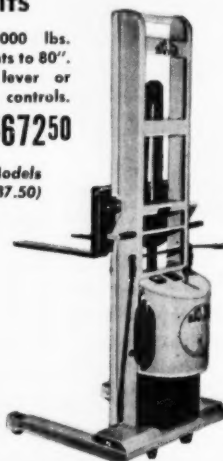


BATTERY-OPERATED UNITS

Capacity 1000 lbs. Lifting heights to 80". Finger-tip lever or push-button controls. Priced from . . .

\$67250

(Other Models from \$587.50)



OVER 30 MODELS TO MEET YOUR SPECIFIC MATERIALS HANDLING NEEDS

Write for specifications on all models

Distributors in Principal Cities

BIG JOE MANUFACTURING COMPANY

900-08 W. Jackson Blvd., Chicago 7, Ill.

Cable Address: Big Joe



*T. M. Reg. in U. S. Pat. Off.

Circle No. 23 on Reader Service Card for more information



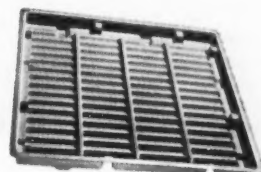
Strong enough for every job... Light enough to do it easier... U. S. Royalite Tote Boxes!

Tough, versatile tote boxes made with U. S. Royalite combine amazing strength with surprising lightness. For example, a tote box formed of this thermoplastic with these inside dimensions, length 18 inches, width 12 inches and depth 6 inches, weighs only 3.8 pounds! Add to this the facts that U. S. Royalite Tote Boxes are waterproof, not affected by oils, alkalies and most acids, have a *one-piece* construction, and you'll see why they give real production economy and efficiency.

U. S. Royalite Tote Boxes come in a wide variety of shapes and sizes in permanent colors. Other important facts about U. S. Royalite are listed below. For complete information about this tough thermoplastic's uses in tote boxes and other products, write to Dept. MMR-2.



Turbine Blade Tray



Filter Element Tray

Check List of U. S. ROYALITE Advantages:

- | | |
|--|--|
| ✓ Lightweight | ✓ Waterproof |
| ✓ Tough | ✓ Color-permeated throughout |
| ✓ Non-splintering | ✓ Available in sheets |
| ✓ Non-warping, non-corrosive | ✓ Stable under changing atmospheric conditions |
| ✓ Impervious to oils, most acids, alkalies | ✓ Exceptional electrical insulating qualities |
| ✓ Highly resistant to impact | ✓ Low rate of heat conductivity |
| ✓ Prefinished to your specifications | |
| ✓ Easily formed on low-cost tools | |

U.S. ROYALITE
TOUGH PLASTIC PRODUCTS



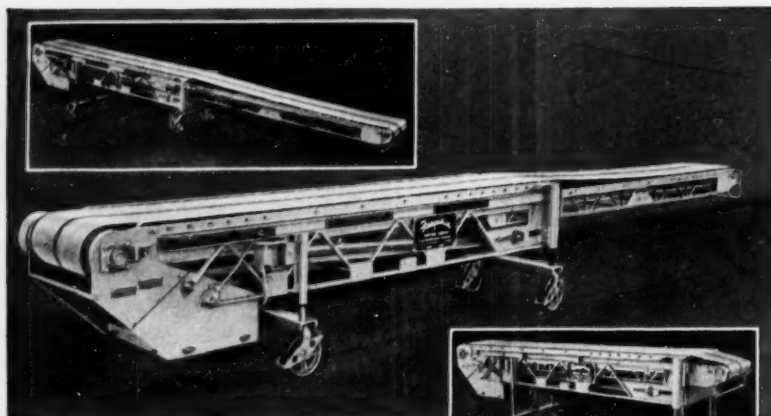
UNITED STATES RUBBER COMPANY

2638 NORTH PULASKI ROAD, CHICAGO 39, ILLINOIS

Circle No. 153 on Reader Service Card for more information

Where can you use this new FARQUHAR *EXPAND-O-VEYOR*?

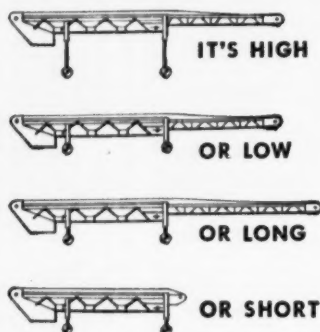
Completely adjustable in height and length!



The new Farquhar *EXPAND-O-VEYOR*: Length and height are both readily adjustable to meet changing requirements. Operates equally efficiently in any position.

HERE's the new Farquhar *Expand-O-Veyor*—literally, the "conveyor with the two-way stretch." Use it at its maximum length and height settings one day; move it to another part of your plant and use it at minimum settings the next day. Or, operate it at any combination of height and length positions you desire. Use it in loading and unloading trucks—keep one end fixed and shorten or lengthen the other as your truck becomes full or empty. The versatility of the new Farquhar *Expand-O-Veyor* makes it suitable for a wide variety of material handling problems—especially where space and working requirements change often.

For more information about this and other Farquhar portable, semi-permanent, and permanent power driven or gravity conveyors, write our engineering department, stating your problems. We'll be glad to consult with you . . . at no obligation, of course.



OLIVER

Farquhar
CONVEYORS

**POWER-BELT
AND
GRAVITY
CONVEYORS**

FREE!

"Owners Report"—booklet of case histories showing typical money-saving conveyor installations.

MAIL COUPON FOR YOUR COPY

**THE OLIVER CORPORATION
A. B. FARQUHAR DIVISION
Conveyor Dept. A-66, York, Pa.**

Gentlemen:

Please send me my free copy of "Owners Report."

Name

Firm

Address

City Zone State

Circle No. 173 on Reader Service Card for more information

AD LITERATURE

Continued

How traffic lanes can be rolled on dry is explained in literature available from the Minnesota Mining & Mfg. Co. in describing its colorful "Scotch" plastic tape No. 471 available in eight colors.

Circle 108 on Reader Service Card

An eight-page illustrated bulletin AD-55 contains complete description and specifications for the new 4-wheel drive Shovel loader manufactured by the Baker-Lull Corp. It is available upon request.

Circle 17 on Reader Service Card

Complete information on the electric Walkie lift trucks may be obtained from the Moto-Truc Co. The trucks are said to be especially adapted to close working areas.

Circle 111 on Reader Service Card

Traffic congestion within a plant can slow down production and movement of materials. Lamson Corp believes that is the time to look upwards into the possibilities of a Lamson overhead conveyor system. They have literature available.

Circle 83 on Reader Service Card

A copy of "Case Studies in Modern Lifting" is available from the Globe Hoist Co. in describing the numerous applications in which Globe Oilift hoists have solved production and material handling bottlenecks.

Circle 63 on Reader Service Card

How to achieve efficiency in your particular material handling operation might be learned through literature available from the Gifford-Wood Co. G-W engineers design the complete installation to best suit the needs of the user.

Circle 62 on Reader Service Card

Gillette

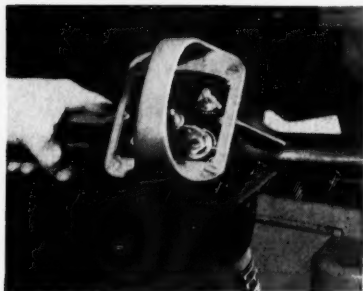
insures "Super-Speed" deliveries with Lewis-Shepard Trucks

It's a staggering job—keeping the men of America supplied with Gillette Super-Speed Razors, Shaving Cream . . . and millions of smooth-shaving Gillette Blue Blades a month. Yet the Gillette Safety Razor Company's Shipping Department beats this challenge every time—and insures "Super-Speed" deliveries—with considerable help from a fleet of super-dependable L-S Materials Handling Trucks!

Cost-shaving dependability — One big reason for Gillette's use of L-S Trucks is their outstanding maintenance records. Here are the facts!

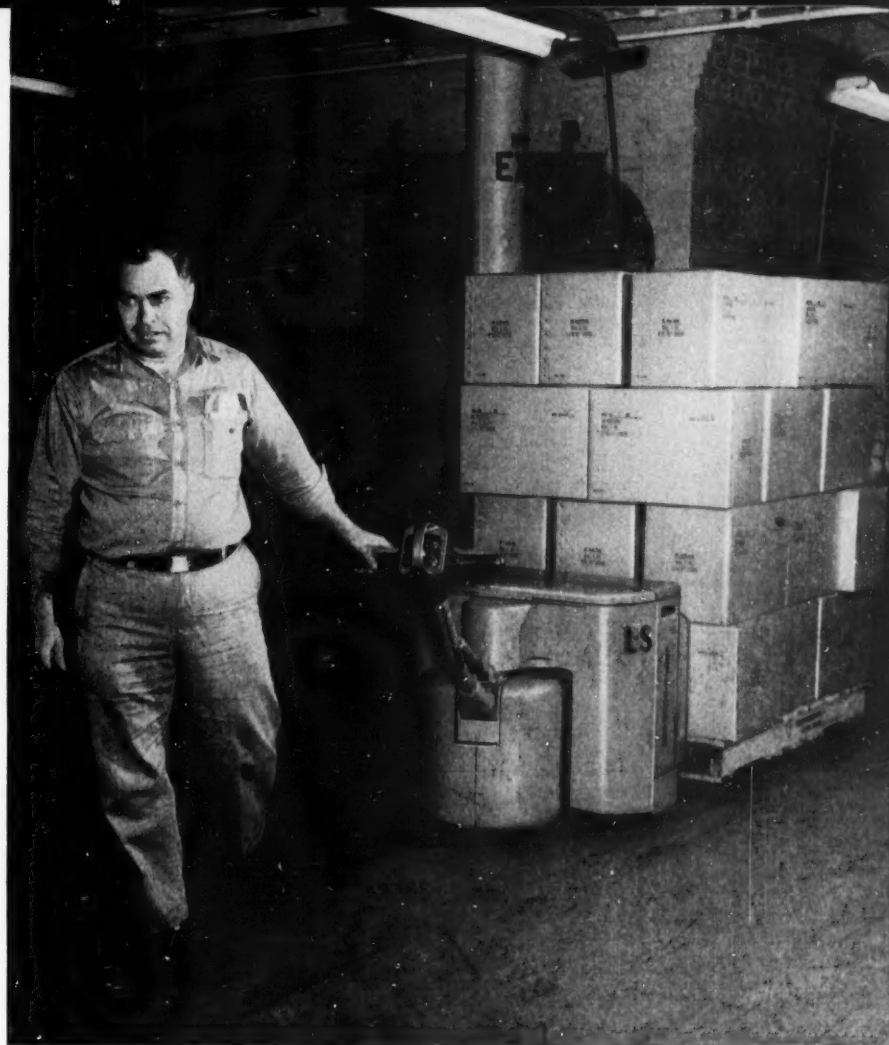
With 10 L-S electrics in operation throughout the plant, records for a recent 12 month period (10,400 truck hours) reveal only 39½ hours total downtime for other than routine service. In other words, each truck averaged less than 4 hours of out-of-service time per year. The total cost for parts during the same period was less than \$5 per truck. That's dependability!

Here's what Gillette found — (and you will too) about the unique L-S operating controls on the JackLift Electric Walkie pictured here: All controls, are within easy fingertip reach on the handle head (inset). All controls, including the electric brake, operate with the handle in any position.



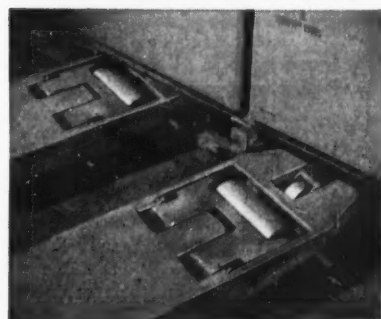
The results are faster, safer operation and far greater cramped-area maneuverability. Furthermore, the handle is balanced to minimize operator's arm strain during hauls.

Circle No. 85 on Reader Service Card for more information



You, too, can enjoy these L-S advantages! No matter what you handle—cornflakes or castings—there's an L-S Truck designed to fit your needs . . . *exactly*. Learn about the dollar-pinching dependability of L-S Materials Handling Trucks. Write us or call your local L-S Representative, listed under "Trucks, Industrial" in your Yellow Phone Book.

Exclusive also are the L-S Booster Rollers . . . an engineered feature to make pallet entry and exit smoother, without damage to pallet boards.



Happy Customers

Listed are some current L-S reorders from "bluechip" companies in various industries

Motor Car	45 L-S in use—reordered	2
Grocery Chain	73 L-S in use—reordered	6
Chemical	14 L-S in use—reordered	5
Elec. Goods	194 L-S in use—reordered	14
Carbon Mfr.	23 L-S in use—reordered	4
Mfg. Chemicals	74 L-S in use—reordered	6
Glass Mfr.	12 L-S in use—reordered	2
Rubber Goods	5 L-S in use—reordered	3



The "MASTER" Line

LEWIS-SHEPARD

44-11 Walnut St., Watertown 72, Mass.

Please send me

- ☐ Proof Folders
☐ Electric Truck Comparison Charts

Name

Company

Address

City State



LOOKING INTO THE FACTS
... LEADS INEVITABLY TO MAGCOA



THIS MAGCOA RAMP-DOCKBOARD IS 5 YEARS OLD —and still going strong!

When this company bought this Magcoa Magnesium Dockboard back in 1948, it made an investment in safe, light-weight, heavy-duty, permanent equipment. The first cost was the only cost.

How about you? Are you still risking workers, lift trucks and loads on a dangerous, makeshift bridgeplate? Replacing one beat-up, worn-out piece of plate with another one that really isn't any better? Why keep on paying and paying for heavy-metal plate never intended for that use, even by the companies that sell it? As a matter of fact, many of them were among the first to switch to safe, long-lasting Magcoa Dockboards—the line with more in-use service than all competitive equipment combined.

But why wait? Get the facts . . . contained in the free new Magcoa Dockboard Facts File. And be sure to look into the new Magcoa Portable Yard Ramp: a rugged, high-speed loading dock . . . where and when you want it. Use the handy coupon.

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AD LITERATURE

Continued

Keeping bulk materials flowing smoothly from bin storage places is explained in detail through literature available from the Geroter May Corp. manufacturers of Pneu Bin, a vibrationless bin activator.

Circle 60 on Reader Service Card

Eighty pages of "know-how" have been compiled by Faultless Caster Corp. presenting much worthwhile data designed to help solve caster problems. It gives caster recommendations for all industries, or businesses using mobile equipment.

Circle 54 on Reader Service Card

Information available from the Flash-Stone Co. tells how its product, Dynapakt Concrete has been developed to withstand heavy loads as well as sudden shocks.

Circle 167 on Reader Service Card

Truck users who are particularly cost-conscious may request data from the Elwell-Parker Electric Co. describing its Cargo Scout which is said to operate for pennies a day and has exceptionally low maintenance requirements.

Circle 50 on Reader Service Card

How extra protection on the job is provided by Coffing Safety-Pulls is explained in Bulletin MH-10-SP available from the Coffing Hoist Co. The dual ratchet and pawl principle gives positive protection against slipping.

Circle 35 on Reader Service Card

Features of Cardinal pallets described in literature available from Hopkinsville Pallet Co. include the use of fine Kentucky hardwoods, pre-drilled boards and steel drive-screw nails.

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FLOW • NOVEMBER, 1953

55



IN FOUNDRY, FACTORY OR MILL

you play it
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...with
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Just as important as the time- and labor-saving advantages of Coffing Safety-Pull Ratchet Lever Hoists is the way each one protects your men from injury . . . your equipment from damage. Here's why:



Load cannot slip even if handle is accidentally released — because of dual Ratchet and Pawl principle, developed by Coffing and an outstanding Coffing advantage for over a quarter of a century.

Load is held positively at all times — there is no friction brake to slip or freeze.

Hooks will not break or straighten out.

"Safety-valve" handle will bend before any other part of hoist gives way.

Safety-Pulls are single-chain tested at 100 percent above warranted, rated capacity.

Find out more about how Coffing Safety-Pulls provide extra protection on the job. Write for Bulletin FL11SP.



COFFING SAFETY-PULL
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2 coil chain models, $\frac{3}{4}$
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AD LITERATURE

Continued

Mansaver Industries has a complete catalog available showing various grabs for use with overhead hoists and cranes and adaptable to any shaped object.

Circle 95 on Reader Service Card

Literature and sample roll may be obtained from the Behr-Manning Corp. in its endeavor to prove to industrial tape users the versatility of its Behr-cat filament-reinforced tape.

Circle 22 on Reader Service Card

Special process conveyor belts designed for specific operations such as carrying products through heat treating chambers or special baths, are described in Catalog 52F obtainable from Ashworth Bros. Inc.

Circle 12 on Reader Service Card

Wire trays and tiering baskets ideal for small parts manufacture or on the assembly line are described in literature obtainable from Jaxon Wire Products.

Circle 79 on Reader Service Card

Plant managers, especially, will want the new informative catalog No. 535 recently released by Barrett-Cravens Co. It covers the complete Barrett line.

Circle 21 on Reader Service Card

Full information may be obtained from A. J. Gerrard & Co. on various methods of reducing handling costs through the use of the manufacturer's strapping system.

Circle 61 on Reader Service Card

"Rite-Hite Keeps Traffic On The Go" is the title of a free booklet which may be obtained from Loomis Machine Co. It gives all the details on the company's adjustable loading dock.

Circle 86 on Reader Service Card



name the materials handling job **BARRETT HAS THE EQUIPMENT**

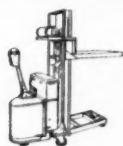
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Designed to operate at top efficiency with minimum maintenance. In developing a complete line, Barrett engineers built sturdy units simple to maintain. **RESULT:** all Barrett-built materials handling equipment does its work well at low cost...even when operated by less experienced help.

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Consisting of a Nifty Lifter and Nifty Skids. The economical answer for smaller installations requiring fast handling in congested areas.

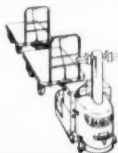


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Hand and electric. Pile "ceiling high" to conserve floor space. Cap. 500 to 2,000 lbs. Custom built to any cap.

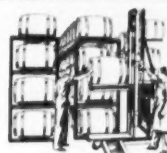


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Model RX. Radio remote control. No operator necessary. Saves hours in storage and order picking time.

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EVERY PLANT MANAGER SHOULD HAVE CATALOG 535

This 100-page illustrated catalog describes the complete Barrett line. Full of ideas and money-saving features. Contains specification charts.



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2 to 3 TIMES
MORE WORK!**



Driver calls in for next job. Instant contact keeps men and machines working. There's no waiting for instructions with Motorola 2-way Radio on the job!

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enables chemical company* to reduce waste motion and waiting time—assures on-the-spot action when time is money!

Motorola 2-way Radio more than doubled material handling efficiency for a well known chemical company. Fork lifts and trucks—no longer tied up waiting for orders—do two to three times more work. Drivers get instructions without leaving their cabs—actually start after loads while still being briefed.

You, too, can cut costs and speed operations with Motorola 2-way Radio. Eight exclusive features guarantee precision selectivity . . . time-tested durability . . . obsolescence-proof design. Let a Motorola engineer in your vicinity give you the complete Motorola 2-way Radio story.

For details write Dept. 2286-F today!

*Name in our files.

*The trend is to MORE
MOTOROLA 2-way RADIO
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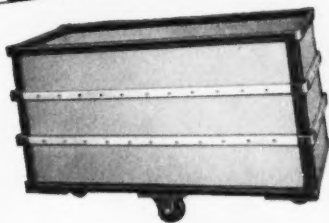
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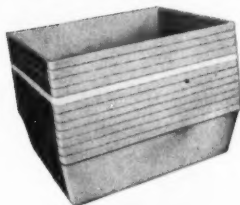
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with **KENNETT**
**Materials Handling
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TRUCKS FOR EVERY PURPOSE

Made to order any size. Available in hard vulcanized fibre, resin bonded plywood veneered with hard vulcanized fibre, or from steel veneered to both sides of water proof core.



TRAYS FOR EVERY PURPOSE

Light, strong, inexpensive "Fiberglas" reinforced plastic trays (various colors)—for stacking or nesting. Also, trays made from hard vulcanized fibre in any type and size.



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Available in any type and size to your specifications. Made from hard vulcanized fibre or "steel-klad" fibre. Weight reduced to minimum without loss of strength.

We can make this statement because for over 30 years our exclusive job has been the design and construction of specialized handling equipment to do certain things under certain conditions—efficiently—economically!

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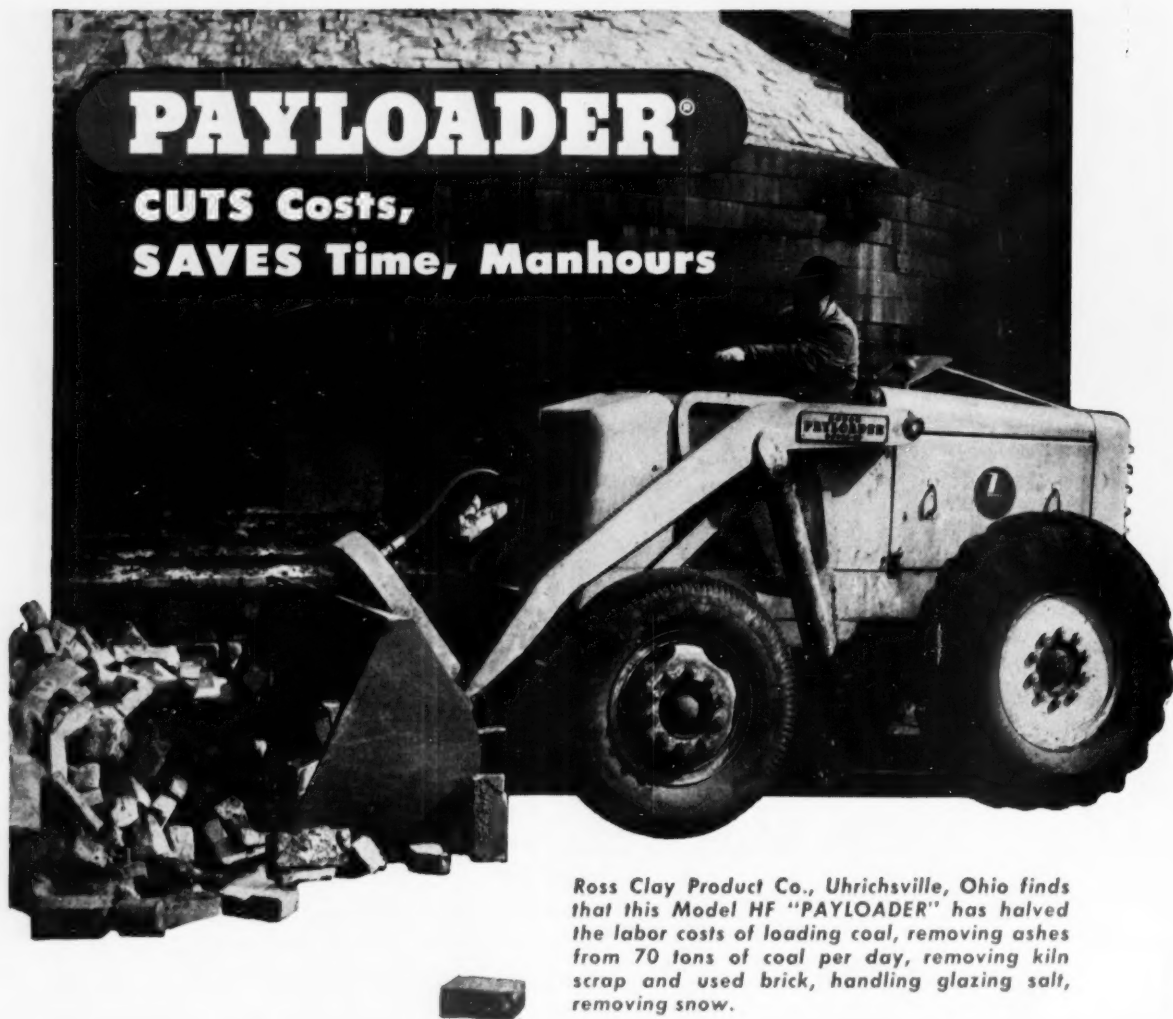
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THE HIDDEN COST OF MATERIALS HANDLING CAN BE THE DIFFERENCE BETWEEN PROFIT AND LOSS

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PAYLOADER®

**CUTS Costs,
SAVES Time, Manhours**



Ross Clay Product Co., Uhrichsville, Ohio finds that this Model HF "PAYLOADER" has halved the labor costs of loading coal, removing ashes from 70 tons of coal per day, removing kiln scrap and used brick, handling glazing salt, removing snow.

Ross Clay Product Co. is one of hundreds of brick, tile and other manufacturers who have found that it pays big dividends to use "PAYLOADER" tractor shovels. These usual machines scoop up heavy loads of material, dump them into trucks or carry them fast, and deposit them where needed.

The large pneumatic tires of the "PAYLOADER" plus its several speeds forward *and* reverse enables it to get around fast on pavement, floors or ground, inside or outside, and do a score of material-handling jobs faster, cheaper and better than they've ever been done before. "PAYLOADERS" are available in sizes from 12 cu. ft. to 1½ cu. yd. to meet *your* need and are sold *and serviced* by a nationwide system of "PAYLOADER" Distributors. The Frank G. Hough Co., 731 Sunnyside Ave., Libertyville, Ill.

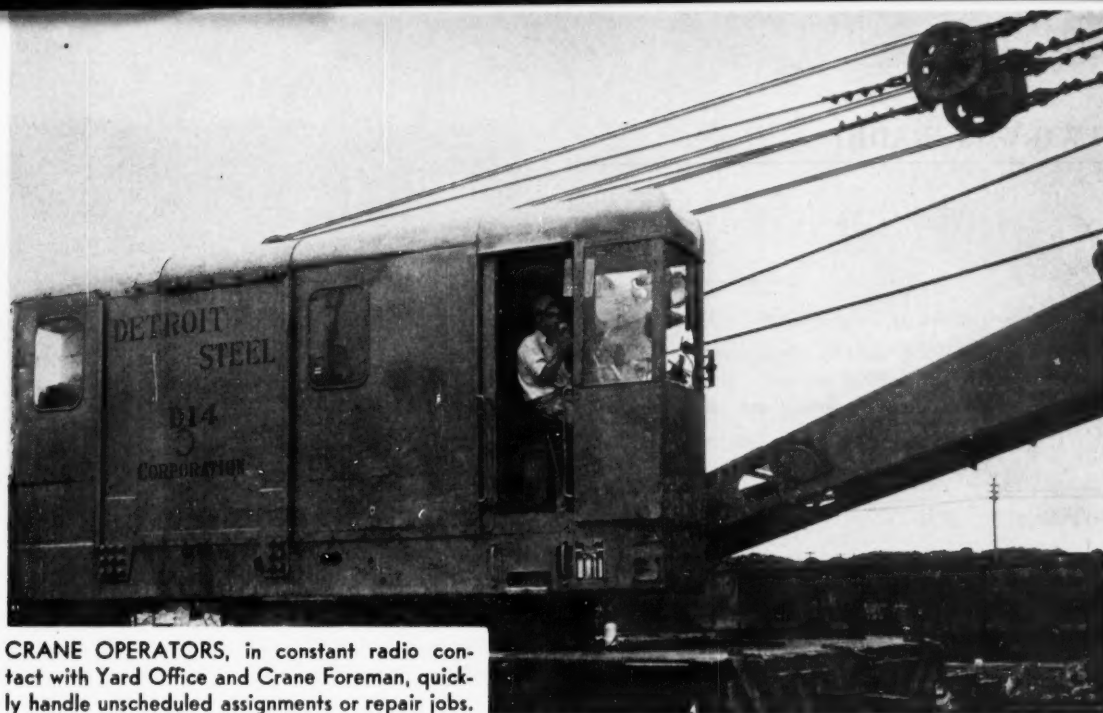


FREE HANDBOOK

Tells how and where to look for signs of inefficient bulk-materials handling — how to analyze, organize and set up an efficient handling system plus many useful tables and data. Write for "Bulk Materials Handbook."



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CRANE OPERATORS, in constant radio contact with Yard Office and Crane Foreman, quickly handle unscheduled assignments or repair jobs.

2-Way Radio Tunes In 7-Way Savings

SINCE INDUSTRIAL RADIO has become an integral part of material handling systems, many plants have found far more uses for it than they originally expected. And every new use has resulted—directly or indirectly—in an appreciable saving.

As did other companies, Detroit Steel Corporation originally installed a radio system at their Portsmouth, Ohio, plant to obtain, ultimately, *maximum use of handling equipment*—to eliminate deadheading, maintain schedules of delivery between widely scattered production and storage areas, and the like. Use of the equipment for *plant security* was also anticipated. But, again as in other plants, it wasn't long before imaginative personnel—operating as well as supervisory—found at least five other ways in which radio could make their jobs easier and more productive.

Having purchased a long-inactive steel plant—which sprawls along the Ohio River for some 3½ miles, at widths varying up to a half mile—Detroit Steel initiated a 60 million dollar improvement and building program. For more efficient handling, much of the original 32½ miles of standard gage track had to be rearranged and the total trackage extended to 36 miles.

It Brings Extra Benefits In . . .

Use of Handling Equipment . . . Plant

Security . . . Safety . . . Training . . .

Maintenance . . . Equipment Interchange

. . . Time

Included among handling equipment initially procured were seven 95-ton diesel-electric yard locomotives and six diesel-electric, self-propelled cranes, in all of which radio was installed. It was planned that this equipment would function not only for material handling in the production of steel—maintained at the highest possible level while the modernization program progressed—but also in the building program itself.

In this dual role, then, radio communication was soon employed: in various aspects of *safety*; in *training* new operators of diesel equipment; for fast accomplishment of *repairs and maintenance*; for rapid *interchange of handling equipment*; and to assist and save time for *personnel*—these in addition, of course, to the two primary functions for which it was purchased.

Safety: During the expansion program, less track has been usable, but much of the congestion has been relieved through rapid radio communication. Even though about 25 percent of the trackage is constantly
(More on next page)

TWO-WAY RADIO

Continued

COMMUNICATION among dispatchers and operators of yard locomotives prevents accidents, helps in training—and gets maximum use of equipment.



unavailable, there has not been a locomotive collision since the radio went to work. Formerly—due to many close clearances, curves and junctions—collisions were common. Now operators can warn each other as they approach these critical points; the Yard Office can also predict and broadcast possible transportation dangers. In the event of any accidents in the plant, medical help can be called for and dispatched with minimum delay.

Training: Because the diesels replaced steam equipment, and some new people were also added, it has been necessary to train operators to handle the locomotives. Radio communication between operators has done much to make the transition smooth and minimize loss of time. The more experienced men can advise others and help solve any problems that may come up. The same potential exists among crane operators.

Repairs and Maintenance: Prior to radio, it took from 30 minutes to a matter of hours to obtain crane

service in the event of trouble. A crane foreman would have to be located; he would then have to find a crane to send to the location. With radio, a crane can be at the scene of, say, a derailment within 15 minutes. It happens, too, that when assistance is needed at one end of a train, a crane can be directed to approach from the best direction. Otherwise, the equipment might have to backtrack and detour a considerable distance to make the right approach. Radio makes it possible to clear tracks for cranes on the way to trouble spots.

An incident points up how train operators are enabled to help each other through radio communication. The engineer of one train noticed that a wheel on a pan buggy in another train (on another track) had jumped the rail. He was able to call a warning before any serious damage could occur.

Interchange of Handling Equipment: Cranes now in service are all of the same size and make, but some are equipped with buckets, some hooks, and others electro-magnets. These parts are interchange-

CRITICAL points such as curves and junctions formerly caused collisions. There has not been such an accident at the plant since radio was installed.



FOR SPECIAL JOBS, such as this one in which a properly rigged crane was required to obtain specified material from scrap pile, radio can save hours.





able, but switching them takes time. The foreman used to chase after a crane that was prepared to do the kind of a job he wanted—and it could have been up to three miles away. Now he can call for any kind of equipment and choose the one nearest to the job.

Personnel: As indicated above, there is considerably less walking done now by supervisors, and the result has been better control, coordination and co-operation among all personnel and operations. An example of a pre-radio difficulty indicates the degree of the improvement radio has made for material handlers.

The coke plant is in the most isolated part of the yard, and the nearest telephone at least a half mile away. Even if someone were to answer a call, he probably could not—even if he wanted to—leave his job to run a half mile or more and locate a crane or locomotive. Consequently, mobile equipment that was at the coke plant was practically lost before two-way radio. Generally, there was no contact until its operator would finally call in. Meanwhile, the foreman requiring the equipment tramped around, looking for what he needed, sweating out delays that were often very costly.

Even with the increase in the number of yard equipments, the company believes it probable that the crane foreman does his job twice as effectively as before—and at far less emotional and physical strain.

Two Transmitters Cover Plant

There are two base stations at Detroit Steel—one in the Yard Office, the other in the Yard Track Office (actually the crane foreman's office). The Yard Master directs the movement of locomotives and cranes by radio from the Yard Office. This is especially convenient when orders must be changed or if special

DIRECTION of handling vehicles originates at the console in the Yard Office, so any unusual assignments can be ordered with minimum effect on routine.

ANY EMERGENCY is covered by radio so that whatever help is needed can be instantly dispatched. With a big yard, especially, this can be essential.

assignments develop. The station in the Yard Track Office enables the crane foreman to keep in constant touch with his equipment.

Greater Gains Anticipated

With the modernization program about two-fifths completed, the company has already attributed some sizeable gains to the radio equipment—increases in efficiency estimated as high as 65 percent on crane utilization and 45 percent on locomotives. Supervisors in the yard feel that very possibly the equipment paid for itself in less than a year, that as more production facilities are readied, and more handling equipment is equipped with radio, an over-all increase in efficiency of 30 percent may be realized.



A NEW FEATURE

With this article, FLOW introduces the first of a series of presentations by Guest Editors.

These are Material Handling Distributors, and their representatives from all parts of the coun-

try, who are also Franchised FLOW Distributors. From their continual, close contacts in plants throughout all industries they will provide information on the latest in material handling techniques and applications.

Mechanization Cuts Bag Handling Time 50%

Hundred pound sacks of warm bulk product with slight moisture content were hard and expensive to handle manually. Now, no hand touches them from time of palletizing until customer receives them.



FLOW'S GUEST EDITOR

INTRODUCING . . . E. D. (El) Flournoy, FLOW'S first Guest Editor, owner and founder of the material handling distributing firm of E. D. Flournoy Co., with main office in El Paso, Texas; branches in Lubbock, Tex.; Phoenix, Ariz.; and Albuquerque, N. M. He is a Franchised FLOW Distributor. Very soon after El Flournoy started his firm, in 1946, he found it necessary to take in his son, E. D. Jr. In 1948, E. D. Jr. was established in a branch office in Albuquerque. The Lubbock branch was opened in 1950, the Phoenix branch in '52. Today, the firm distributes a full line of material handling equipment—from the smallest caster on to conveyors, fork trucks, and up to the largest cranes and shovels—and, of course, FLOW.

TREMENDOUS SAVINGS have been achieved through a new material handling operation at Western Cottonoil Co., in Lubbock, Texas. In one phase alone—loading boxcars—the time has been reduced from 3-4½ man-hours to ½-1 man hour.

The nature of the product in itself made manual handling difficult. The company produces cotton seed meal and pellets, which are warm, have an eight percent moisture content, and are packed in 100 pound burlap bags. These are stacked in a warehouse of approximately 15,000 tons capacity.

The firm required a system, mechanized as far as possible, to provide: faster, more efficient handling and high stacking (15 to 16 feet) in the warehouse. . . . a better method of loading railway boxcar shipments to customers throughout the country (with no chance of inter-shipment of pallets) . . . and an improved method of distribution via highway trucks to local warehouses at distances from about 30 to 45 miles from Lubbock (with inter-shipment of pallets required).

Equipment installed for the operation included 16-gauge, steel, "take-it-or-leave-it" pallets, 48x48 and 42x52; and a 3,000 pound capacity fork truck with unloader attachment and five-prong, job-made forks.

Once bags are palletized, they are not again touched by hand until a customer receives them. According to C. M. McClure and W. B. Cooke Industrial Engineers,

nine handlings have been mechanized in shipping operations alone—three in connection with rail car loading and six for highway trucks.

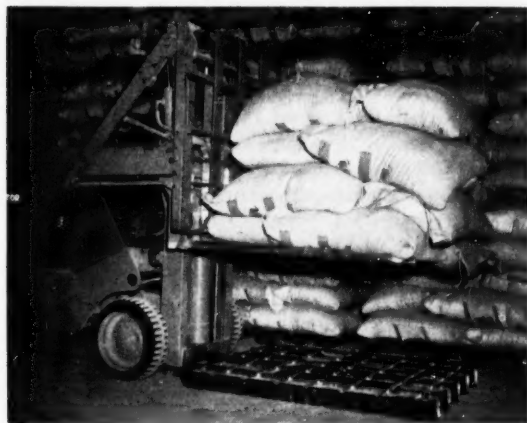
The 48x48 pallet is used to load bags destined for box car shipment. A clover-leaf stacking pattern, four stacks to a layer, five layers high, provides a load of 2000 pounds plus the weight of the pallet. (This is an ideal size for the stacking pattern because there is very little waste in the center of the clover leaf.)

In-and-Out Handling in Unit Loads

For loading bags for van shipment to nearby Cottonoil distributing warehouses, the 42x52 pallet is used—with 12 sacks, three to a layer, four layers high. These are then loaded into the truck six on each side and double-decked to make a full load of 24 pallets. When delivered to various warehouses, these pallet loads are removed as units by fork trucks—which are also used to load customers' vehicles.

At the present time, pallets are stacked three high in the warehouse, but it is anticipated that with a higher mast on the truck they can easily be stacked four high.

LOWERING bags onto "take-it-or-leave-it" pallet for warehousing. Pallet loads are stacked three high at present, but four-high stacking is anticipated.



IN VAN SHIPMENTS, 42x52 pallets carry 12 sacks, three to a layer, four layers high. These are loaded six on each side of truck and double decked.



Steel pallets were chosen for this job because of the moisture and heat content of the product. The take-it-or-leave-it feature eliminated the need for crews to unload each pallet for rail shipment.

With the new system, one man can load a box car by himself in an average of 30-60 min. (In a test made under ideal conditions, by a very fine driver, a car is claimed to have been loaded in 20 minutes.)

Rail car loading formerly took a crew of six men 2½ to 3 hours. The same result has been obtained for truck loading—where, in the past, it took several man-hours to load a van, it is now done in 15 or 20 minutes by one man.

Actual cost of warehousing has been cut tremendously. One or two fork trucks can take loads from the palletizing crew, high stack in any location in the warehouse, and keep up with the production schedule. This job used to take a crew of 8 or 10 men, who sometimes found it difficult to keep up with production. Two fork trucks now take care of all handling in the warehouse and during shipping.

UNLOADER on fork truck settles bags on pallet as forks are withdrawn. Pallets don't go with rail shipments but do go when trucks deliver to distributors.



CLOVER LEAF stacking pattern, originally on 48x48 pallet, comprises four stacks to a layer, five layers high, for most compact rail car loading.



Here's a handling analysis that clearly shows potential for . . .

Substantial Savings from a planned Tool Crib Delivery System

ON MANY A LARGE MACHINE and job shop, the location of the tool crib and the tool supply system can make an important contribution to overall efficiency of operation.

Poor location and inadequate tool storage and issue procedure cause losses in operators' time as they go to and from the tool crib. Such losses not only represent a waste of man-hours but also an additional loss caused by idle machinery as an operator secures tools for the job.

An examination of a present condition shows the problem:

The tool crib is located against the center of the north wall of the machine shop. It is rectangular in shape, with three distributing windows 14 feet apart. Each of these windows is serviced by one tool crib attendant.

The following table indicates its location with respect to the various departments.

	Distance To And From Crib	Number of Men In Dept.	Av. No. Of Trips Per Day Per Man	Total Travel Per Day Per Dept.
Lathes	190 ft.	5	6	5700 ft.
Tur. Lathes	230 ft.	14	4	12880 ft.
Drill Press	56 ft.	10	9	4940 ft.
Hor. Bor. Mill	80 ft.	5	6	2400 ft.
Mills	150 ft.	22	5	16500 ft.
Burr-Ass'y.	260 ft.	21	1	5460 ft.
Assembly	510 ft.	22	1	11220 ft.
Burring	260 ft.	3	3	2340 ft.
Assembly/Heavy	410 ft.	14	1	5740 ft.

The above table was determined by measurement and an observation of the departments involved.

At this time, as a job is assigned to the operator he will punch in on the job, read the job instruction, study the print and walk to the tool crib in order to secure the necessary tools.

Present Tool Crib System

An observation of the tool crib over a number of days revealed that the crib attendants were idle 60 percent of the time. Yet, when they were busy they usually had a rather substantial waiting line.

It is indicated that certain hours are favorite times in which most of the operators seeks their tools. Since this plant does not control its operators when they want to go to the crib, it develops that mid-morning and mid-afternoon have become what might be termed "tool crib socials." A number of operators sign out for tools; while they wait, rather lively discussions develop.

The cost of the present system is developed in the accompanying table. It shows a yearly cost of \$51,300.00, based on the hourly rate of \$6.00 for the Machine Tool Department, and an hourly rate of \$4.00 for Assembly operations and burring.

Considering the cost of the idleness of extremely expensive capital equipment, the above cost may indeed be considered to be a very conservative figure of the cost of the present system.

Revision of the System:

In order to eliminate the present costly tool crib system, the following is recommended:

1. Orders for tools should be placed well in advance of the time at which they will be required.
2. Tote pans should be procured and used to hold tools for specific requisitions from the various departments.
3. The moving department should take the requisitioned tools to the specific department involved. (For this function, a fork lift truck is available.)

To carry out the above recommendations, the following costs would be entailed:

Preparing tooling cards

Number of tooling cards required—10,000
Time required to prepare card—167 hours
Cost per hour—\$4.00
Cost of above: 10,000 x .167 x \$4.00\$6,680.00

Tote Pans

Cost per each—\$2.75
Total number required—400
Cost of tote pans: 400 x \$2.75\$1,100.00

Handling

Fork truck is expected to make (2) trips per day, delivering and picking up tools

A WUNSCH FOUNDATION AWARD WINNER

In competition sponsored by J. W. Wunsch of Silent Hoist & Crane Co. for students producing best papers on material handling, the author of this article, Harry L. Newman, Industrial Engineer in the Equipment Manufacturing Plant of Continental Can Co., won his award at Illinois Institute of Technology. After serving as apprentice machinist in Germany, Mr. Newman came to the U. S. in '39 served in the 79th Infantry, obtained his B.S. from Illinois Tech. in '49, and is now studying nights for an M. S. degree.

during each of the rounds. Time required for each trip—0.5 hours

Cost of handling—2 x .5 x \$6\$ 6.00

Multiply by 250 to obtain cost of handling per year\$1,500.00

Cost during first year of operation\$9,280.00

Saving due to reducing number of tool crib attendants (from three to two men) \$4,000.00
Expected cost of installing recommended system and operating system during first year\$5,280.00

Results Anticipated from Improved Method

The figures developed indicate a substantial saving is possible, as follows:

Cost of present system\$51,300.00

Cost of recommended system during initial year\$ 5,280.00

Net saving\$46,020.00

Naturally, there will be some cost involved in maintaining the recommended system of tool forms. Yet this cost is roughly only equivalent to the saving achieved in reducing the number of tool crib attendants by one.

The suggested system will eliminate the period of feast and famine on the tool crib, where the attendants are either idle or exceedingly busy. The system of tool requisitions will permit the tool crib attendants to plan their day of picking orders for the various departments.

Machine operators will be able to devote their full time and attention to the job for which they are hired; namely that of tending the machines. Thus, they will be able to reduce idle machine time.

These recommendations will systematize material handling; each operator need no longer be his own material handling expert.

In furnishing the proper tools to the operators, the processing department ties the method of operation (it expects the operator to follow) to the time which has been pre-determined. Since method determines time, potential grievances can thus be eliminated before they become an actuality.

In determining the above cost, it was believed that present material handling equipment could be utilized to carry out these additional functions. Should the present fork truck be already utilized 100 percent the acquisition of an additional truck would be recommended.

Under these assumptions, the saving would be affected in the following manner.

Saving\$46,020.00

Cost of lift truck\$ 1,900.00

Net Saving\$44,120.00

DEPARTMENTAL COST FOR WALKING AND WAITING

	No. of Men	Trips Per Man Per Day	Av. No. of Trips Per Dept. Per Day (St'd. Hrs.)	Av. Trip Time Per Man Per Day (St'd. Hrs.)	Av. Time at Window Per Man	Total Time Per Trips St'd. Hrs.	Total Time Per Day St'd. Hrs.	Hourly Rate	Cost Per Day	Cost Per Year*
Lathes	5	6	30	.038	.050	.088	2.64	\$6.00	\$15.84	\$ 3960
Tur. Lathes	14	4	56	.046	.050	.096	5.38	\$6.00	\$32.28	\$ 8070
Drill Press	10	9	90	.011	.050	0.66	5.94	\$6.00	\$35.64	\$ 8910
Hor. Bor. Mill.	5	6	30	.016	.050	.066	5.94	\$6.00	\$35.64	\$ 8910
Mills	22	5	110	.030	.050	.080	8.80	\$6.00	\$52.80	\$13200
Burr.-Ass'y.	21	1	21	.052	.050	.102	2.14	\$4.00	\$ 8.56	\$ 2140
Assembly	22	1	22	.102	.050	.152	3.34	\$4.00	\$13.36	\$ 3340
Burring	3	3	9	.052	.050	.102	.92	\$4.00	\$ 3.68	\$ 920
Ass'y.-Heavy	14	1	14	.082	.050	.132	1.85	\$4.00	\$ 7.40	\$ 1850
Total										\$51,300

*The year is based on 250 working days.

Intangible Gains . . . They're Important

It's difficult, if not impossible, to establish precise cost values for many of the results which can be expected from an improved handling plan—says Jervis C. Webb, President and General Manager of Jervis B. Webb Co.—but they show up when the program is in operation.

SIGNIFICANT CHANGE is taking place in the attitude of people charged with material handling responsibilities. Snap decisions as to whether handling systems should be revised are becoming more and more practices of the past. Today decisions are being pondered—those who have to make them are taking longer to bring deliberations to the point of action. This applies, to some degree, from top man-

gibles as concretely as possible but also with combined elements of intuition, hunch and imagination. Industry has noticed, in recent years, extremely large handling systems initiated and constructed because of an intuitive hunch on the part of top management. Studies in intangible savings never could add up in a clear-cut way until the whole plan was in operation.

On the other hand, in the lower echelons there are,

Dividends Seldom Shown on Blueprints:

Reduced Inventories—less goods-in-process, smaller stocks of raw materials diminish working capital requirements.

Better Control of Inventories—mechanized delivery of parts and sub-assemblies reduces opportunity for delays due to human error, keeps production flow smooth and in balance, minimizes storage space needs, prevents accumulation of excess or outmoded parts, provides for first-in-first-out operations when products are perishable or delicate.

Greater Comfort for Workers—better handling naturally leads to better safety, comfort and convenience for personnel; how much the improved atmosphere contributes to greater efficiency can only be felt positively under operating conditions.

More Precise Flow Timing—carries principles of standardization and interchangeability of parts to ultimate in cost-saving.

Higher Flexibility—not only provides for production of diversified lines but also makes it fast and easy to supply operators with tools, equipment and supplies needed in a shift to another type of operation.

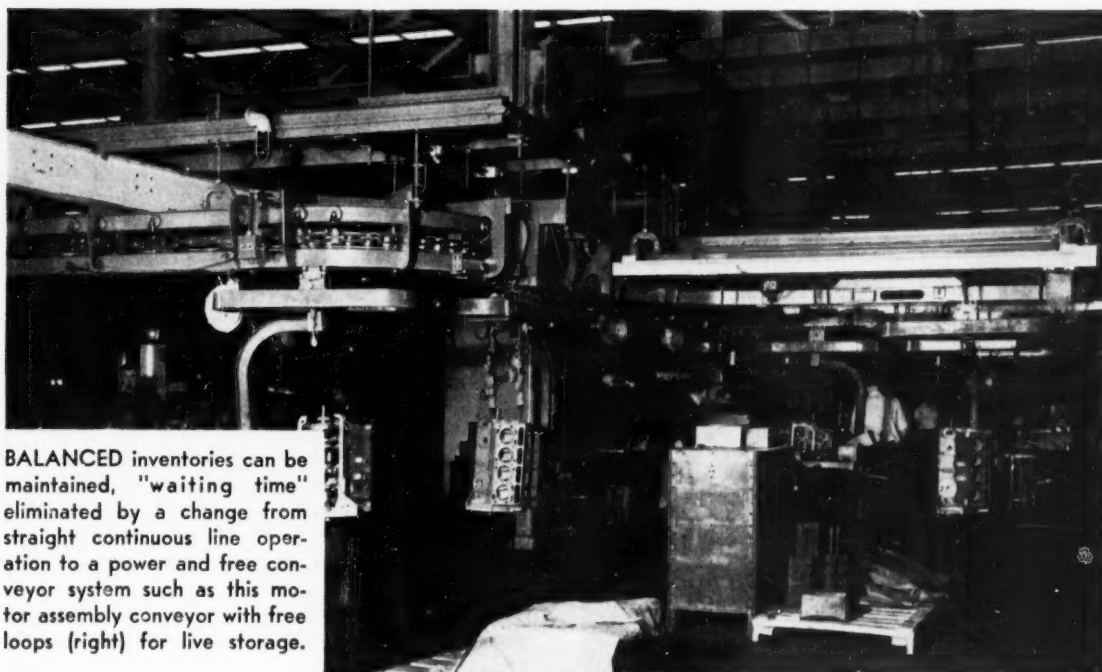
Maximum Utilization of Space—not only storage but also working areas can be more economically utilized if handling is visualized in three dimensions.

Improved Quality Control—where an operator has control of mechanical equipment that must express its activity accurately by gage and graph, he can stay on top of quality specifications. Spoilage is thus reduced.

agement to handlers serving an assembly line.

One of the reasons for this change is that more intangibles are now being considered in decisions as to whether a firm should go into better, more mechanized handling. Whenever the intangibles become predominant in a decision, more top managerial talent will be apt to take an active part not only in the final action but also in the initiation of the overall system study. The executive in business deals with many intangibles all day long. His decisions must necessarily involve compromise, and his steps can rarely be very clear-cut. He must deal with intan-

today, more and more of those who think independently and feel the long-range needs of the company as a whole while, at the same time, they are deeply involved in material handling problems specifically. They, too, accept the challenge of dealing with intangibles, realize the problems, battle first for themselves to come up with what they feel is the best plan, and then carry it on up the long hill to the top decision. Many in this group could very well hesitate because a decision requires a good hunch in the first place, the development of self-confidence in a plan, and then, finally, crystal clear expression and



BALANCED inventories can be maintained, "waiting time" eliminated by a change from straight continuous line operation to a power and free conveyor system such as this motor assembly conveyor with free loops (right) for live storage.

reporting to superiors. When the intangibles are used in these reports, they must handle them conservatively and yet not underrate them. A report immediately puts them in a position where they must meet top management on a ground in which the boss has probably had more experience and can think a bit faster.

Very recently the writer approached an organization which had put in a brand new system—of a rather revolutionary character, involving hundreds of thousands of dollars—and discovered that the general manager had entirely initiated the plan and carried it over every stumbling block. Only after the system was complete was it apparent to the rest of the organization that it would pay for itself by enabling simplification of inventory control.

On the other hand, a few years back I witnessed the struggle of a plant engineer way down in the echelons of a corporation. He carried his plan from department to department until, finally, he was given a hearing before a large group which included the general manager. Here he gave an extensive, well thought-out report, only to be told that the system did not appear feasible; there were too many intangibles in it. A few weeks later the general manager ran across him in the plant, told him he had been thinking of his report ever since, and, that the intangibles had assumed greater importance the more he thought of them. From then on, the two of them worked together to produce another revolutionary system.

Broad and Specific Analysis Required

To come up with the right solution to our handling problem, regardless of our industry or type of operation, we must approach it broadly as well as spe-

cifically. Further, we must not leave anything out of consideration simply because it is difficult to get dope on it.

Need for advanced handling systems and need for changes in outmoded systems are always real; they are a fact whether seen or not. Further in the absolute, the intangible and tangible reasons for steps each have a proper weight and a place in decision.

Practically, however, needs seem to be discovered rather than recognized as always there. In most cases our discovery, or recognition, of a material handling need and its solution result from careful analysis, and this paper really boils down to a brief compilation of steps to be taken and things tangible or intangible to be considered in analyzing handling problems. Since the writer's experience has been concentrated on conveyors, automation and related systems, the discussion more easily develops in these lines.

Perhaps too many times in industry the steps of thinking that lead to a discovery or recognition of a need are fairly loose and not too complimentary to us as the analyzers. But such a cycle has very often lead to the complete revitalization of a handling system in a plant. First, we suspect (or have a hunch) that something could be done along a certain line. By combination of coincidence, we see an example or two slip by. We're not sure but suspect this might not be just a special case. Then we see someone else in another industry, or another plant, getting along very well with the idea we're just formulating. After we have ruled out of our thinking that it might be all right for them but wouldn't work with us, we make a brief analysis and become fully conscious that we should have it.

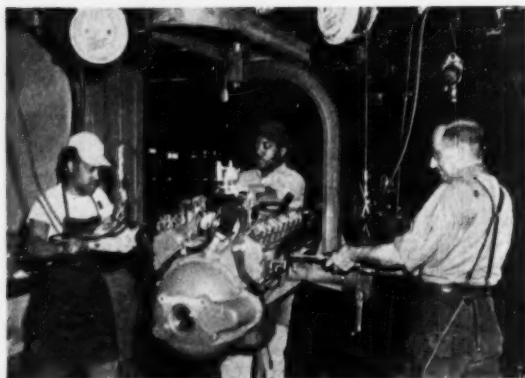
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INTANGIBLE GAINS

Continued

Now we find that we must express it, and since there are some tough intangibles involved, and it isn't enough just to say that the other outfit is getting along very well with it, we stumble for some time on expressing ourselves to the organization as a whole. Finally, in the full process of time, the plan comes to some sort of expression . . . lies dormant . . . gets kicked around . . . and then by some of the oddest circumstances, if we were to admit it, goes through and becomes an accomplished fact. And we are heroes—if it proves out.

This sort of an analysis is too often present in all approaches to that which is new. On the other hand, we can short-circuit it a lot by analysis of handling



TIMED FLOW need not compromise "the best way" to do a job. If items must be stationary at times, power and free track can keep them within flow plan.

as a whole and by thorough familiarity with some of the cost saving principles involved.

Study for Savings

Let's skip through a number of factors and principles involved in material handling and see whether, by putting a group of them together, we can at least see value in continually studying our plant activities. Let us divide handling into four broad categories: *transporting, storing, processing* and, fourth, the *assembling, fabricating or making element*. Now, let us keep these in mind all through our study and then look for savings.

In the not-too-distant past, there was a strong feeling that the study of handling savings was best approached with the attitude that refinement of handling should not be too great—"let's just try to find the cream in savings." This viewpoint has changed a great deal, but first considered as the cream in savings were those that had to do with the elimination of *unnecessary direct and indirect labor*. There were the saves involving *doing it mechanically rather than by manual labor*. There were the *rehandling saves*,

the *elimination of the return empty*, and always *having a pay load*. Then, there were saves of a *shortened path of travel*, the *saves of the movement of material in the quickest and most direct combinations to the final point of finished product*.

Just as Gilbreth found in the analysis of a small assembly operation that it was wise to break down elements of motion and time in minute detail in order to determine a better way, it is well known that a good analysis—breaking down time and motions into units in a department-wide or plant-wide handling study—is equally as wise. We should study the present system and see where the rehandling is, where the return empty is, where the delays might be. And then, after we are thoroughly familiar with the present set-up by units, compare it step by step with other handling possibilities. Every time we eliminate one of these cost factors, we have a material handling saving.

As we work on a revised layout and come up with direct savings, we finally approach a point where the cost of the change and the cost of handling equipment that may be necessary are justified by the savings. Contrarily, we definitely see sometimes that it is not. Then we either return to what we have or, as is most probably the case, we compromise and pick up some of the less expensive savings we saw justified along the way.

This type of study, of course, has to be reconsidered from time to time to take into account any change in equipment costs or labor rate increases that might change the answer to the problem. Recently the writer witnessed the installation of a conveying system integrated with four-wheel trucks for overall handling in a multi-story building. The building was a tough one for the activities to be performed. In order to solve the problem, some elevators in the building had to be completely blocked out and filled with conveying systems instead. Only a complete analysis of the present system as against the proposed system would overcome the natural feeling all organizations might have to cutting down on elevator capacity in a multi-story operation. This job, however, was completely and correctly analyzed. It accurately took into account the varying waiting delays for elevators and the loss of handling control because of the intermittent nature of the old system. The change was made, and it has paid off.

Of course, all the subjects to be brought up need to be considered as a whole, as well as individually, but we must get to them so let us continue with another factor.

Inventories Tie up Money

Goods-in-process, raw materials and inventories must be kept at a *minimum*. This fact is important to all hands in the organization, but it is particularly evident to the financial interests of the business, and others in management, as here a considerable amount

of the organization's working capital is tied up. Those who would improve material handling should very well spend time in an analysis of their overall handling system strictly from the standpoint of the elimination of the goods-in-process required in their overall production activity. Discussion of continuous methods of operation versus batch type are rather old hat, and yet there are still organizations which could well go into the savings derived from less money tied up in inventories by making their systems more continuous. On the other hand, after extensive analysis of this factor, and others, there are still places where the batch method is the more economical.

In general, in mass production and in heavy warehouse handling activities, the thin, continuous line of mechanized handling complete with thin continuous lines of subordinate feeders, brings savings in working capital. If it is suspected that this might be true in an activity, it should not be dodged. It should be analyzed—the material involved in the one method versus that involved in the other laid side by side—and the decision be made from the facts.

Control of inventory is many times a significant factor in the amount of inventory needed in the overall activity. In the mass production industries—such as the automotive, household appliance or steel industry—control of inventory has reached an optimum by means of the ease with which a highly integrated inventory control system can be tied in with the thin lines of mechanized continuous conveyor handling.

On the other hand, many activities cannot simply copy the complex inventory and conveyor timing-scheduling relationship that these industries have. Their products might involve such multiplicity of sub-assemblies that, despite the best efforts of inventory control in sub-assembly production, the human element might still get things out of balance. Further, where there is a continual changing from one product to another on the final line, again involving many changes in the sub-assemblies, this can get to the

point where supervision just cannot be sure that, all along the line, each inventory control and each scheduling operation is correct and exact. When the system gets out of hand, backwashes, bottlenecks and other unbalances of material accumulate. These immediately require additional working capital and space. Finally, because of change of model or product, excess spare parts eventuate and hit the scrap heap.

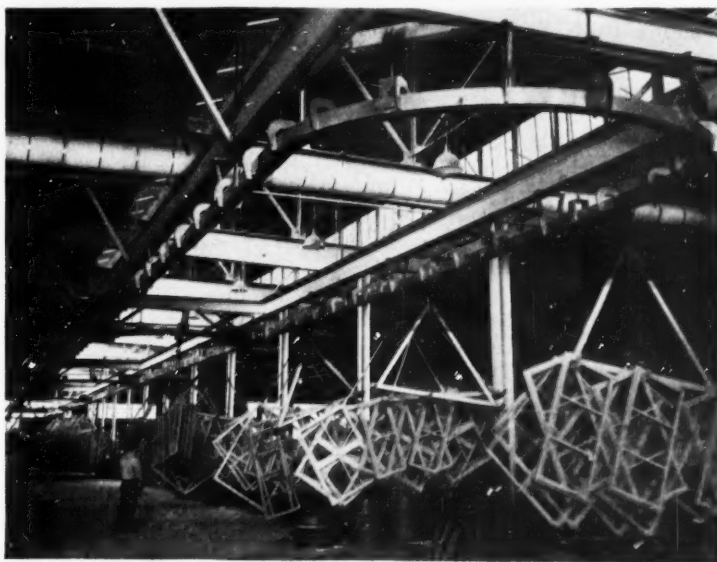
Modification of mechanized handling systems which point up visually to supervision any unbalances of inventory have definite value. Management seems particularly interested in this type of double check, which gives an alarm to foremen and their assistants when any part of their systems might be falling apart.

For example, an assembly line making various automotive instrument panels was fed by a continuous overhead trolley conveyor line. Because of the multiplicity of small parts, the scheduling of the sub-assembly lines and the sub-assembly storage operations were long a problem. Many foremen were involved with many miscellaneous schedule notes, trying to balance and keep sufficient parts in the proper ratio for the final assembly line. Unbalances occurred and, in general, quite a backlog was required for smooth operation in the final line. The system was changed from the straight continuous trolley conveyor to a power and free conveyor system, which deposited trays of parts directly to the individual final assemblers and left them there. The foremen of the sub-assembly lines were able to make a quick count of the carrier trays behind the final assemblers—noting whether they had one, two or three trays—and practically eliminated the complexity of the problem. Visually, they were given an immediate warning signal where bottlenecks might occur. This has cut their need for hours of backlog down about 40 percent, producing a considerable goods-in-process saving.

Sometimes the continuous mechanized system is either found uneconomical by first analysis or is put

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LIVE STORAGE hair pin section of free rail creates readily available "bank," provides for easy inventory, and utilizes space efficiently.



For products, in process or packages, that
must be protected against excessive pressure,
E. H. Woodberry, Conveyor Division Manager
of Lamson Corp. offers suggestions to help

Ease the **SQUEEZE** in Handling on Live Rollers

CONTAINERS and cases at the discharge end of a long, live roller conveyor bear increasing pressure from all those accumulating behind them. This can lead to damage of both the container and its contents—especially when momentary shocks occur as the build-up continues—unless something is done to reduce this pressure to a safe level.

When such a condition has existed, it has often been thought necessary to restrict the number of items carried on conveyors at one time. Hence, full utilization of the equipment has not been obtained. These notes are intended to show that it is not difficult to obtain maximum use from live rollers and how the push on materials at the end of the line can easily be controlled well within tolerable limits.

Turning Rolls Exert the Push

Conventional types of belt-driven, live roll conveyors consist of carrying rolls—on whatever centers are required to properly support the load—with a belt running underneath. The belt is held against the carrying rolls by pressure rolls so that, in its movement, the belt turns the carrying rolls.

The pressure rolls are normally spaced one for every three carrying rolls so that two out of three carrying rolls are powered and the third is idle.

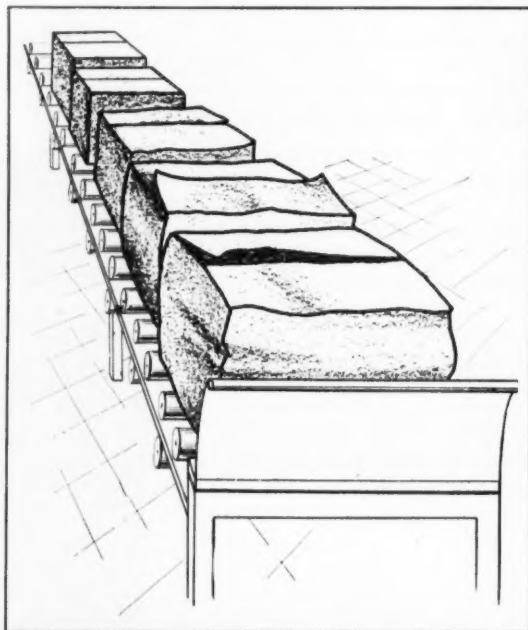
As the belt must ripple as it passes over the pressure rolls and under the carrying rolls, a considerable snubbing action, with subsequent high horsepower, is involved. In the event that loads are blocked on the carrying roll surfaces, the snubbing action of the belt continues to turn the rolls, which attempt to push the loads ahead. As a result, considerable pressure is developed in any length of blocked loads.

For example, if we assume a live roll conveyor 100 feet long with a live load of 20 pounds per foot, the total weight of the blocked load is 2,000 pounds. For

wooden cases the friction between the turning steel rolls and the wooden cases is usually estimated at 35 percent, so that the pressure at the discharge end of the conveyor would become $2,000 \times .35 = 700$ pounds.

Reduced Snubbing Reduces Pressure

It has recently been determined that by careful adjustment of the pressure rolls, to provide only a min-



DAMAGED cases and containers can occur at discharge end if rollers continue to turn against blocked loads, producing increasing pressure with build up.

imum snubbing action against the carrying rolls, this pressure may be greatly reduced. Actually, the pressure of the snubbing roll is so adjusted that, when blocked load conditions occur, the belt will slip between the pressure rolls and the carrying rolls. Otherwise the slippage occurs between the carrying rolls and the load.

The reduced snubbing action in the belt, as a result of this final adjustment, is responsible for a decrease in pressure on the load and, under normal conditions, a friction factor of 10 percent is estimated for this modified design. Thus, in our example, the blocked load pressure would become $2,000 \times .10$, or 200 pounds maximum at the discharge point. This is a tremendous reduction from the 700 pounds described above, and when spread over the end of a case it becomes only a few pounds per square inch.

Adjustment of the individual pressure rolls to the minimum tension could be very difficult and require constant tuning and attention. Therefore, in order to

make this kind of adjustment practicable, pressure rolls are mounted in sections, slightly less than 5 feet long, which are supported from the carrying roll frame by four corner adjusting screws. This design provides for easy and fine adjustment of the pressure rolls to effect the reduced blocked load pressure.

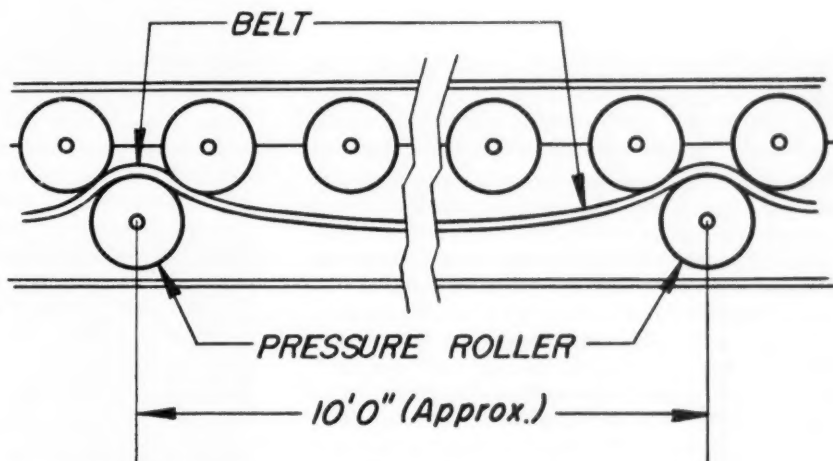
This type of construction is now used as standard on level or very slightly pitched live roll conveyors whenever blocked load conditions are a requirement of the system, and live roll lengths of over 100 feet are completely practicable without undue pressure and damage to the cases being transported.

There is another type of live roller conveyor, recently introduced, that lowers the pressure of blocked load conditions still further. This type is especially applicable in very long installations.

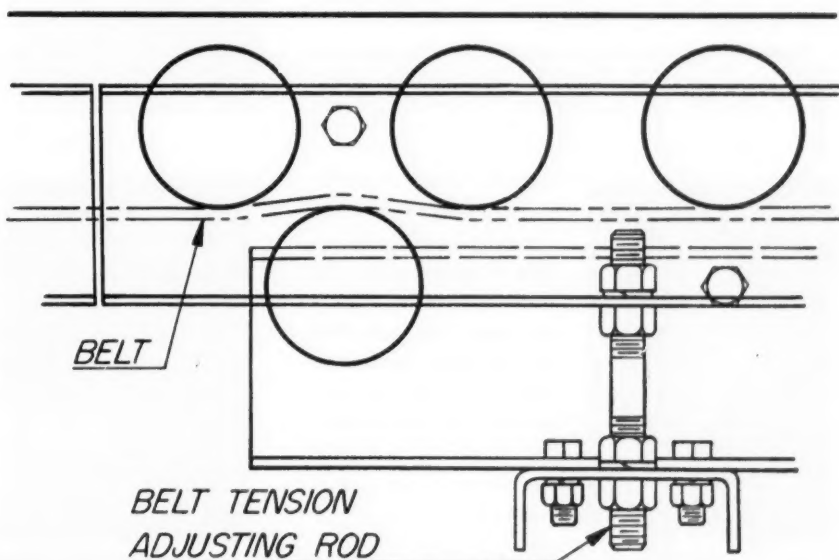
Most cases will travel on gravity roller conveyors at a pitch of .4 to .5 inches. However, uncontrolled roller

(Continued on page 139)

SLIGHTLY PITCHED live roll conveyor with very narrow belt and widely spaced pressure rolls combines advantages of live and power roller conveyors.



SNUBBING action shown as belt passes over pressure roll to turn carrying roll. Adjustment of belt tension rod so that belt will slip when load stopped on carrying roll greatly decreases pressure on blocked loads.



TOP MANAGEMENT

Talks Handling

Grasping their first real opportunity, high level industrial executives give material handling experts an all-day workout in a conference sponsored by The Material Handling Institute, Wayne University and the Detroit Board of Commerce.

FROM EARLY MORNING until late evening, some 200 top management executives from all industries have met to take part in intense and uninhibited discussions on the economic aspects of Material Handling.

It was a momentous event—without precedent in the history of American industry—in that such a large group representing such high levels of responsibilities gathered together for such a long period to give undivided attention to one operational activity of common interest to all.

Called "A Working Conference on the Economics of Material Handling from the Management Viewpoint", it took place at the Rackham Memorial in Detroit, on September 17, with each participant attending at the mutual invitation of the Material Handling Institute, the Detroit Board of Commerce, and Wayne University, sponsors of the meeting.

Discussions were centered around the addresses and remarks of four panelists, each a nationally recognized authority on management phases of Material

Handling. The morning session was devoted to their talks, and from there on free discussions kept the conferees occupied well into the night hours. Panelists were: John Drury Sheahan, of Drake, Startzman, Sheahan and Barclay, New York; W. W. Beardslee, Manager, Manufacturing Services Department, General Electric Company, Schenectady; E. C. Stephenson, Vice President, Finance and Accounts, The J. L. Hudson Company, Detroit; and A. T. Waidelich, Vice President and Manager, Research Division, The Austin Company, Cleveland. Abstracts of their talks follow:

John Drury Sheahan: "Control and Organization for Materials Handling."

Material handling should be the responsibility of a Director of Physical Distribution at the vice presidential level.

There are four reasons for creating such an executive, who would have full responsibility for materials handling, warehousing, layout, packing, traffic and control of materials:



W. W. Beardslee

• There is in the average company an underestimation of costs that go into material handling. If people know the costs that exist in those operations, they have a debt to management to clearly outline them in a way that management can understand.



John Drury Sheahan

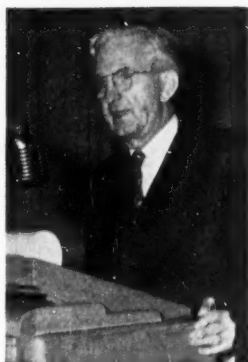
• The key significance to this meeting is that it happened at all. Five years ago I think it would have been impossible. It is only recently that management has addressed its attention to that last large segment of savings.



ABOVE: Questions, submitted during talks, discussed by panel at lunch. L to R: R. F. Oakes, MHI; J. E. Borendame, MHI; W. W. Beardslee; T. N. Nelson, Rogers, Slade & Hill; J. D. Sheahan; A. T. Weidelich. LEFT: Wayne University's President C. B. Hilberry flanked by J. G. Bucuss (MHI), left, and C. B. Elledge (MHI) at conferees' luncheon.



• If you don't know your costs in each segment of your business it would pay to find out. If, through a competing or noncompeting group, you find it possible to cooperate in an interchange of ideas on costs, you will probably find it of inestimable value.



E. C. Stephenson

• The building structure, the physical facilities in modern industry, are so intimately tied in with production and material handling that they should not be looked at separately when capital expenditures are contemplated.



A. T. Weidelich

First, he is at a high level where he can command for these functions the top management attention they deserve. He is in a position to speak when sales promotions are formulated without providing for the impact on transportation and warehousing, or when purchasing policies cause unnecessary handling and storage. With a voice in policy councils, he can make sure his company does not save money in one direction, only to lose it on distribution. He is at the top where he can scan the whole panorama of distribution.

Second, a company can afford to put into this position a high-priced man and gain the benefits of quality performance.

Third, the functions become the responsibility of an expert. They are no longer stepchildren dispersed under executives who are able, but whose interests and experiences are in other fields.

Fourth, coordinated organizationally, these functions are coordinated operationally. There is no stepping on each others' toes. They are integrated under a man who can see when a small change in packing will make a major change in handling, or when a new program is needed to tie traffic and warehousing together to save money in both.

Setting up a Director of Physical Distribution is the best solution we have found to the problem of organizing material handling and related functions for economical operation and effective control.

The need for control techniques—planning documents, organization charts, budgets, progress reports, and the like—is not limited to policy making executives. It extends all the way down the line, for controls

(Continued on page 122)

Warehouse To Full Advantage

(Conclusion of a two-part article)

by H. C. Christiansen, Coordinator of Material
Handling Engineering, Sylvania Electric
Products Co.

LAST MONTH WE SHOWED how to determine warehouse space requirements through the logical use of procedure to suit the specific aspects of particular industries or operations.

This concluding section is devoted to those aspects of warehousing which, although they cannot readily be reduced to precise figures of general industry value, do have powerful effects upon the establishment of calculable values—which may then be used in the establishment of reliably determined space requirements. These, then are considered "General Notes", which follow:

1. From time to time the following philosophy has been discussed in management circles: "If we could

schedule our incoming production materials and shipment of product proportionately, it should be possible to require a warehouse of only three-quarters the size we normally require".

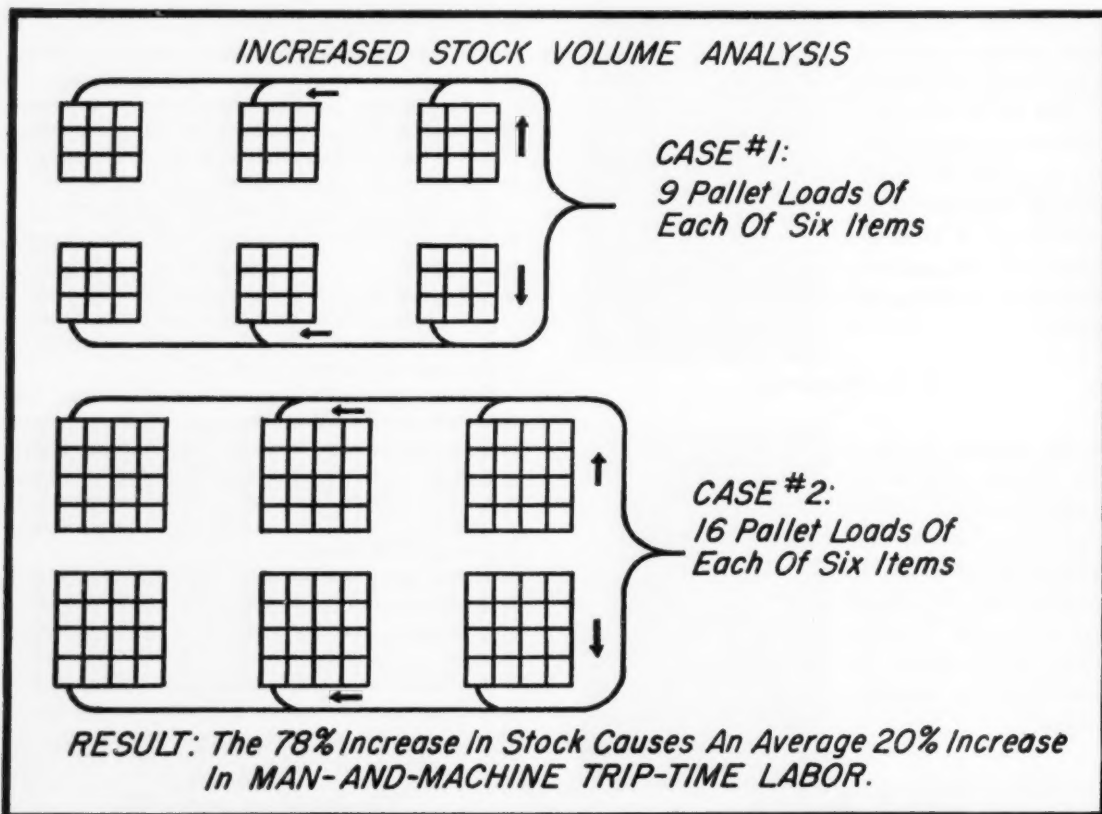
The premise here is that, on items received monthly, if half were received on the first of each month and the other half on the 15th of each month, only 3 units of space would be required for every 4 units commonly planned.

This principle is possible to apply in warehouses if:

Containers of paired items are practically identical in size and shape.

Volumes of such paired items are reasonably equal.

Scheduling of incoming and outgoing shipments



of such paired items can be accurately controlled, etc.

Throughout general industry today, these conditions will rarely occur in any warehousing operation. Therefore, it is recommended that space be provided independently for each item reserve-volume.

2. The value of original warehouse planning will continue only as long as practical operating controls are maintained, as follows:

(A) Inventory records for each item concerned should contain a "Maximum Available Space Factor" in terms of item units, i. e., if space provided for Item "A" in original planning will only permit 500 units of Item "A" in such space, this should be posted on the inventory card as the "Maximum Available Space Factor".

As increments of space are required for certain items, other item volumes must be reduced in proportions to allow logical use of physical space.

(B) Purchasing and sales functions must be geared to meet the possibilities of warehouse space, if frequent rentals of "outside space" or "jamming" of warehouse aisles—with resultant excess costs—are to be avoided.

A frequent cause of excessive warehouse inefficiency is the volume discount purchase of, or the desire for, a freight rate reduction on a carload of item "X"—when warehouse space will only permit the storage of a half carload at the time. Resultant excess warehousing operating

costs usually more than wipe out the discount or freight rate reduction values.

3. Here is an effect commonly overlooked with respect to high warehouse operating costs: Increasing the volume of each stored item *increases labor* (see diagram). It is evident that as the volume of each item stored increases, the man-and-machine trip time or machine-lift time increases on each unit of stock handled.

4. In addition to the ceiling height problem, the height to which stock can be stored is directly dependent upon

(A) Floor load capacity

(B) Stock container "crush" load capacity

These two factors must be given utmost consideration in all warehouse planning effort.

5. Although industry has found the "One Story Plant" generally more efficient than the old multi-story plant, don't overlook the value of two and even three-floor warehouses (See Sketch).

(A) The transport line, "Existing Transport", at the top of the drawing can be assumed to require "X" distance of stock movement on the first floor of a two-floor structure.

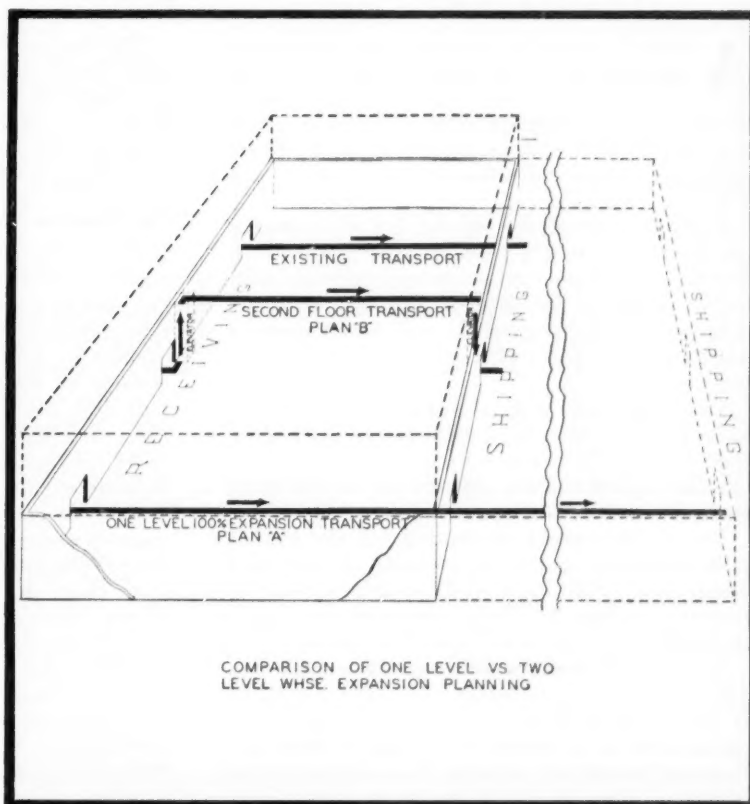
(B) The transport distance in Plan "A" would be "2X".

(C) The transport distance in Plan "B" would be "X" for movement of all stock on the second floor, with the exception of lift and drop distances in order to transport material from the first floor

(Continued on page 141)

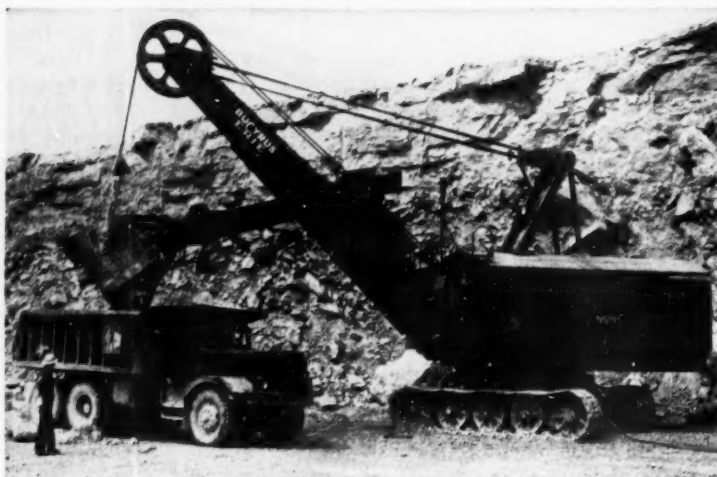
COMMONLY OVERLOOKED factor leading to higher warehousing costs is increase in volume of each stored item. As volume increases, man-machine trip time or machine-lift time also increases.

ALTHOUGH SINGLE story plants have been found generally more efficient, there are conditions under which a two, or even three, story warehouse may prove of higher value.



COMPARISON OF ONE LEVEL VS TWO LEVEL WHSE. EXPANSION PLANNING

CRAWLER SHOVEL is shown loading 25-ton truck. Two of these 4-yard shovels are in continuous, 24-hour operation. Powered by 4000-volt lines from a transformer sub-station, poles carry the lines to the center of the quarry, cables to each shovel.



How To Get High-Tonnage Flow In

AVOIDING excessive overhead costs while maintaining a sprawling, 210-acre operation which moves, processes and stores 400 tons of stone an hour is an accomplishment that requires an intelligent integration of equipment and machinery, efficient operating practice and a thorough maintenance program.

A company which does just that is Basic Refractories, Inc., at its burning plant at Maple Grove, Ohio. The firm is a supplier of deadburned dolomite, deadburned magnesite and other granular-type refractory materials for the construction and maintenance of hearths in basic open hearth, electric furnaces, soaking pits, etc.

The Maple Grove plant processes almost-pure dolomitic limestone taken from its 210-acre quarry at the rate of 375 to 450 tons an hour, and the kiln-processed granular refractories are delivered by the carload to steel producers.

Due to the continuous demand for the burning plant, quarrying and rock processing is done on a 3-shift basis seven day a week, and the company is presently working two levels—the north face and a third-level cut on the south face of the quarry.

The company employs private contractors for overburden removal on a tonnage basis. The overburden is used for back-filling the south-east corner of the quarry, and the company has reclaimed more than 5 acres immediately adjacent to its kilns by this method.

Following overburden removal and clean-up, the initial quarrying step is drilling, done with churn-type well drills, employing crawler-type electric rigs. Water is supplied for the churn drills by drilling an occasional deep hole which will serve as a shot hole for subsequent blasting.

Use Electric Shovels

Two 4-yard shovels are in continuous, 24-hour operation at both faces. Use of the 4-yard buckets on the electric, crawler-type shovels serves as a segregating control for maximum rock size that can be handled by the primary crusher. The shovels are powered by 4000-volt lines from a transformer sub-station on the east side of the company's property. Poles carry the lines to the center of the quarry, and cables are then used to extend power to mobile plug-in boxes for the shovels' trail cables.

Two men are required for each shovel. The second operator serves as a pit man to maintain the quarry floor in the vicinity of the shovel. He keeps the trail cable clear, and also works as relief operator. The second operator also lubricates the machine at the end of each shift.

Seven diesel dump trucks (four 25-ton and three 15-ton) are used on the quarry floor. Rock is hauled from each face to the primary crusher, a distance of approximately 2200 feet. At least four trucks are always in operation, with a load-dump-return cycle of approximately 7 minutes. On the minimum 4-truck



DUMPING INSTRUCTIONS from the crane operator over the jaw crusher to the truck driver are relayed by the simple, but effective, means of a signal light located beside truck approach (arrow). When light is on, he dumps; off, he stops.

Wide-Spread Quarry Operations

schedule, two work with each shovel. On the return, however, the truck driver has a reasonable option of approaching either shovel. If one is down, he will pull up to the other. On this basis, each truck makes from 40 to 45 trips per shift from shovel to crusher.

The entire primary crushing operation is controlled from the cab of a 15-ton, 20-foot span bridge crane on runways 21 feet above the quarry floor, extending the 100-foot length of the primary crusher building.

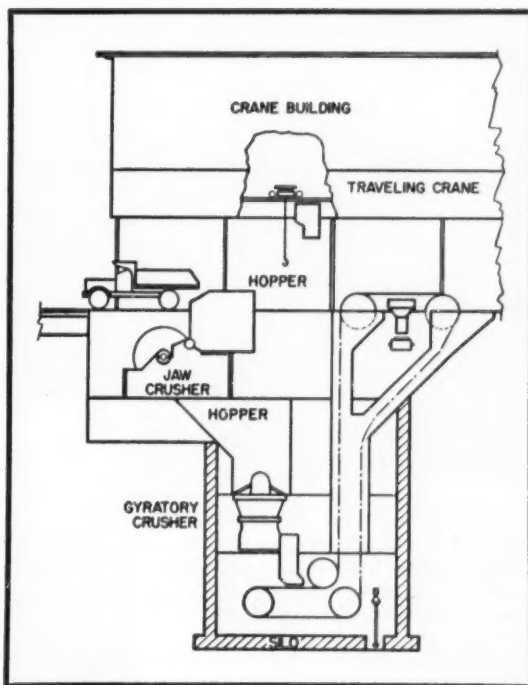
Controlled Dumping

Except for occasional maintenance jobs, the crane is kept over the jaw-crusher feed hopper. The quarry crusher operator controls the rate of dumping from his crane cab to prevent the jaw-crusher hopper from jamming. A signal light controlled from the crane cab is located beside the truck approach to the crusher pit. When the driver backs into dumping position he watches the light for instructions—on, he dumps; off, he stops.

Complete supervision of the crusher operation from the cab vantage point is maintained by means of interlocking controls for the elevator, gyratory crusher, and the stock-out belt. Controls for the gyratory crusher are interlocked with the pivoted bucket conveyor and the stock-out conveyor so that all three stop when one is down.

Loads of 10 to 20 tons are dumped continuously into the jaw crusher feed hopper. The rocks and bould-

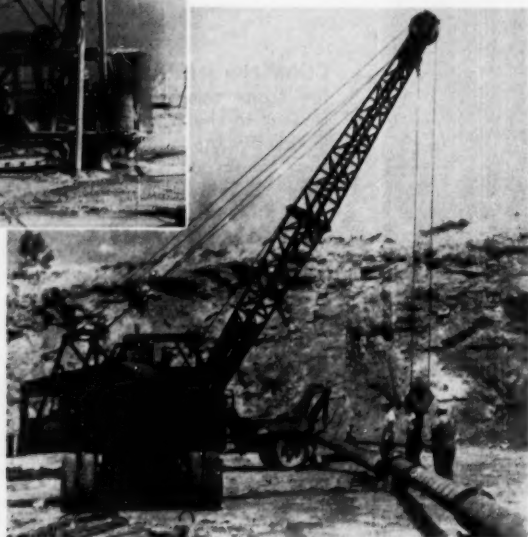
(More on next page)



CONCRETE SILO is put to novel use under the crusher house. As shown in the drawing, it extends downward and houses crushers and bucket conveyor.



VERSATILITY of the equipment is typified by the crane (below), which is used for maintenance and operating work. Shovel (left) is equipped with driller rig, and is bailing hole drilled for blasting.



HIGH-TONNAGE FLOW

Continued

ders fall about 12 feet, and strike steel plate which aids in fragmentation before passing through the crusher jaws. The pivoting jaw is set to pass 9-inch material.

A chute, located below the jaw crusher, directs the stone which falls free a distance of about 10 feet. The material strikes a mushroom-shaped steel shroud which covers the gyratory crusher mechanism, the impact further aiding in fragmentation. The rock gravity-feeds from the cone-shaped hopper into the gyratory crusher, which is set to pass 4-inch aggregate. As the stone leaves the gyratory crusher, it is about 50 feet below the second cut grade level. Its final destination in the primary crusher operation is the surge pile, 110 feet above the second cut grade level.

Underground Silo

The jaw and gyratory crushers and the pivoted bucket conveyor are housed in a silo-type structure which extends 63 feet below the crusher house on the second cut level. The silo is held in place by 250 1-inch bent rods grouted into 4½-inch holes in solid rock.

(Continued on page 82)



STONE from jaw crusher chute strikes mushroom-shaped anvil at bottom of hopper to aid fragmentation (above). Stone passes through gyratory crusher to pivoted bucket elevator and is then discharged onto inclined belt conveyor (above right). The belt conveyor then feeds the stone to a surge pile at the rate of 400 tons an hour, shown at right.





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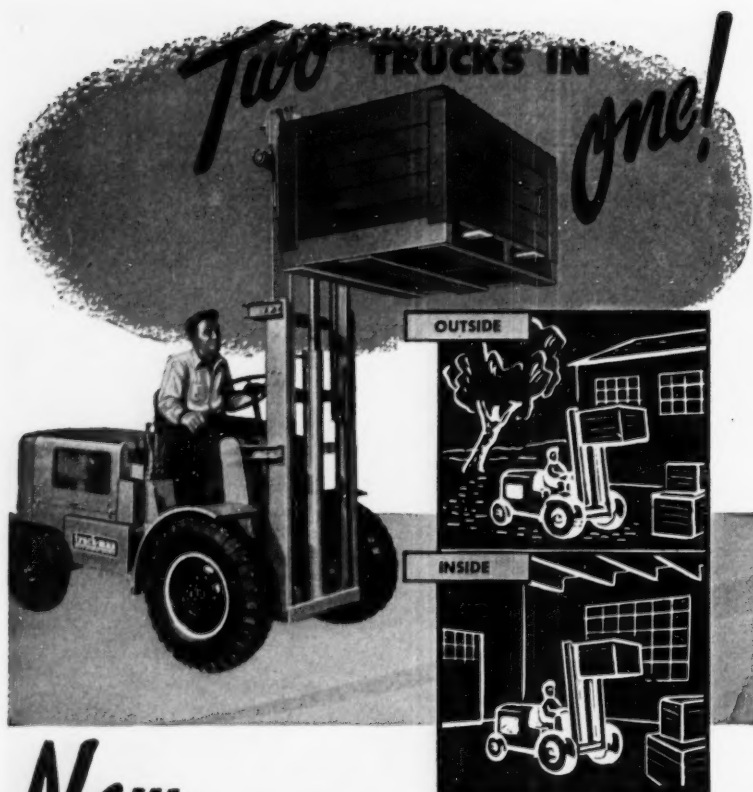
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HIGH-TONNAGE FLOW...

(Continued from page 80)

A pivoted bucket-type chain conveyor raises the stone back to ground level. The buckets fill continuously as they move under the crusher chute, and overlapping lips prevent spill. Mercoid switch devices are located at the tail, feed, and discharge points to stop the conveyor if the buckets fail to pivot. The bucket conveyor discharges to the "stock out" belt conveyor at floor level.

The 36-inch troughed belt rises at 340 fpm at right angles to the bucket conveyor. The belt extends a distance of 338 feet, where it discharges over the surge pile 115 above the second cut grade level. The belt discharge point, 78 feet above the base of the surge pile, is high enough to permit the primary crushing operation to continue stockpiling operations in the event the stone plant should shut down for a day. Use of intermediate storage also enables the stone plant to maintain operations should a work stoppage occur in the quarry or crusher. Total storage in the surge pile is estimated at 27 tons.

Due to the extreme length of the stock-out belt and variable load, special take-up provisions are necessary. The company uses a counter-weighted automatic take-up drum mounted on a 4-wheel truck on an inclined track, 11 feet, 9 inches long.

Planned Maintenance

A definite maintenance schedule is required to keep the quarry and crusher plant equipment in condition for 3-shift, 7-day operation. On each Wednesday, the entire quarrying operation, including the primary crusher, is down for the first shift. During this weekly 8-hour period, maintenance repairs are made where necessary. Shovels and trucks are inspected and serviced. The diesel trucks are serviced each day at shift change. By operating seven trucks, the company can keep a minimum of four on the quarry floor, with two or three undergoing overhaul.

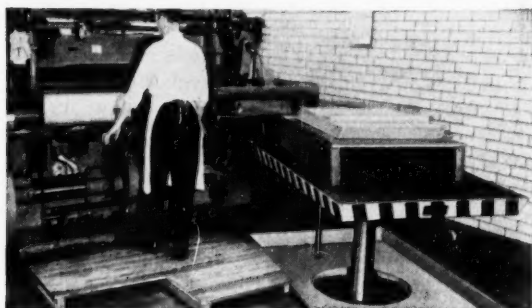
Maintenance and inspection at the primary crusher is done by a

Every Day, Globe OiLIFTS

solve materials handling problems like these . . .

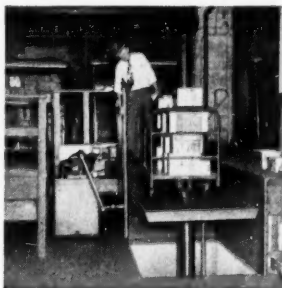
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a Globe Ramp Eliminator

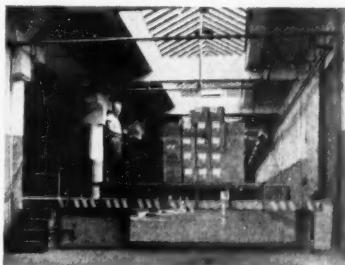
solved a costly materials handling problem in this warehouse. The loading wharf was 54 inches higher than the warehouse floor inside. Trucks were kept waiting while workmen lifted crates, cartons, sacks, and barrels between the levels. Now, loaded hand trucks and dollies are lifted quickly to upper level and moved by direct route to waiting trucks. In the down position, the hydraulically operated platform recesses flush with the warehouse floor.



a Globe OiLIFT Elevator

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a Globe Hydraulic Bascule Bridge



speeds traffic and materials handling in this drug and grocery warehouse. A wide driveway cuts through the warehouse—4'8" lower than the level of the warehouse floor on each side. Once traffic snarls inside and outside the plant often stopped work for hours. Now, men, materials, and fork trucks move from one side of the warehouse to the other by direct route. And, in raised position, the Globe Hydraulic Bascule Bridge permits vehicles to move along the sunken driveway.

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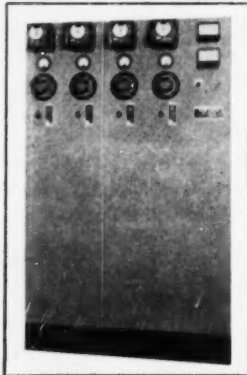
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HIGH-TONNAGE FLOW

Continued

crusher-oiler each shift, and he checks the stock-out belt head, tail and drive. The belt idlers are continuously lubricated, a section at a time each 24 hours. The pivot buckets are inspected and lubricated every 24 hours, while the conveyor wheels are oiled every 48 hours. In each instance, the maintenance men closely observe the equipment so that if major overhauls are necessary, repair work can be scheduled for the first down day.

Storage for heavy, bulky parts required in maintenance is maintained on an old first level. Parts are handled by a utility-type, gasoline-powered mobile truck crane. Equipment is moved by the truck crane from storage over ramps to the quarry floor or up to the stone plant.

It is difficult to imagine the efficiency of this wide-spread operation. However, an indication of its well-integrated nature is found in the quarry superintendent's office. In addition to shift hours and tonnage records, a "distribution of delay" record is maintained. It shows exactly where and when a delay occurs, its nature, and the duration.

INTANGIBLES . . .

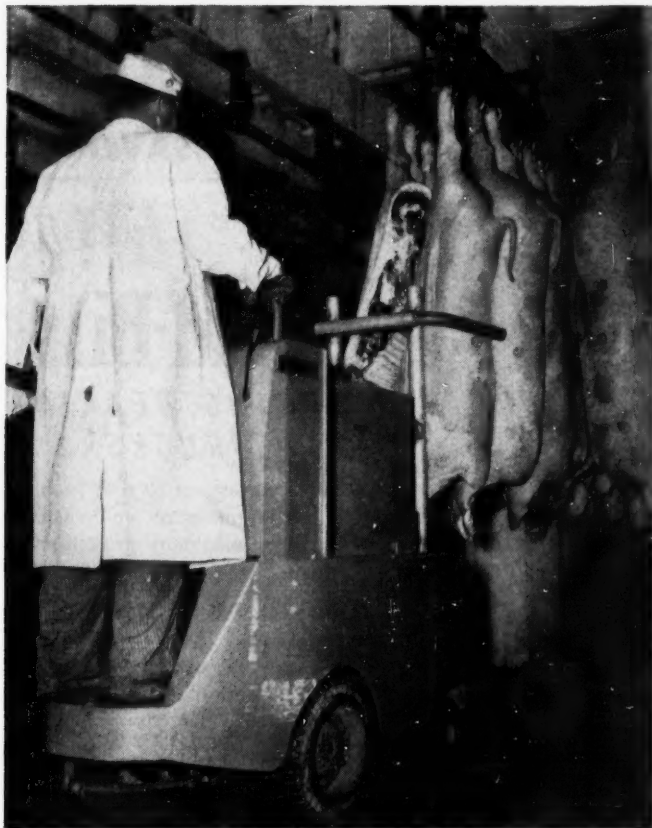
(Continued from page 71)

in and does not do as it should savings-wise, because assemblers or operators must wait too long for parts and sub-assemblies to get to them at the assembly area. The continuous system goes by them, but their particular need might occur when the float of materials is some distance away. Multiple systems, automatic switch-offs, small bank areas—either below or above and away from them—should be gone into very carefully in order to eliminate this waiting time and also make it unnecessary to build up too many parts in process.

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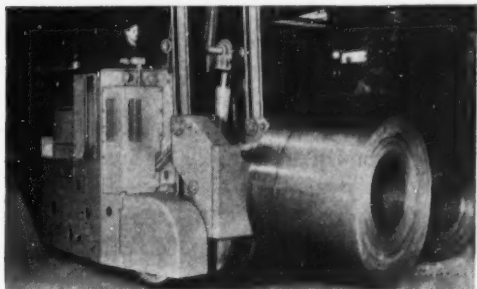
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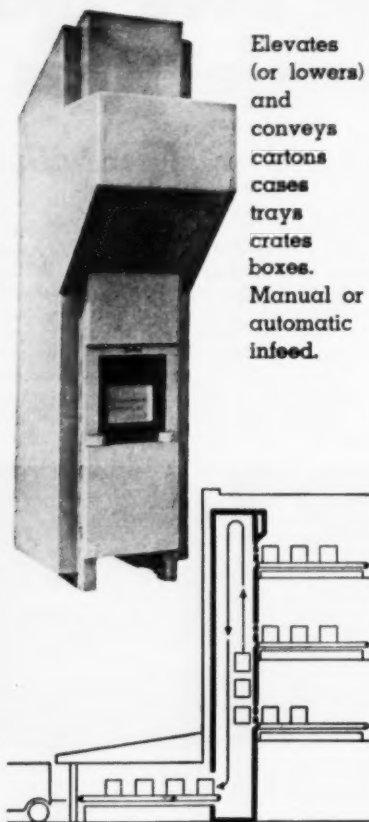
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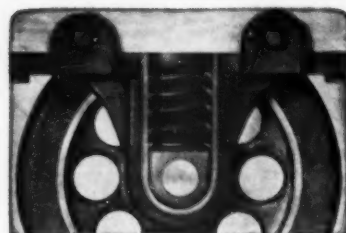
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operation is most advisable. Now, one of the main advantages in a continuous parts feeding system is that if a part is missed, it can continue on through the system and be available the next time around. This is all right for many materials—and obviously gives tremendous flexibility to plant operations—but if material can get out of adjustment, or can be effected by dust accumulation, or is perishable, the analysis must include provision for definite use of the sub-assemblies as they come to the line.

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An intangible which has long been considered the secret to our mass production in-plant handling operations is the creation of *continuous flow*. In the analysis, cost-wise, of your handling system, this should not be considered merely a by-product. It should be intuitively and experimentally but thoroughly examined. In America we have developed fine machine tools; we have worked out interchangeability of parts in our industries; we have pushed standardization further than anywhere in the world. Nevertheless, the writer suspects, from a few trips to Europe and from what has been said by others, that elsewhere there are also magnificent machine tools capable of producing in great volume. In England, France, Germany, and other European countries, the idea of interchangeability of parts and standardization has caught hold firmly in most of their industrial activities. Nevertheless, despite our high labor rates and more elaborate working conditions, we beat them costwise. In some part, we say that it is because of our volume. But I think we more than suspect that the secret is our mechanized in-plant handling which creates the timed flow of off-assemblies and final assemblies from raw material to finished product.

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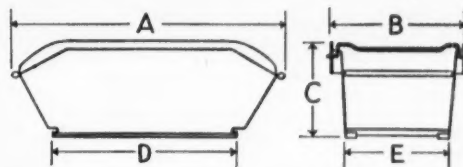
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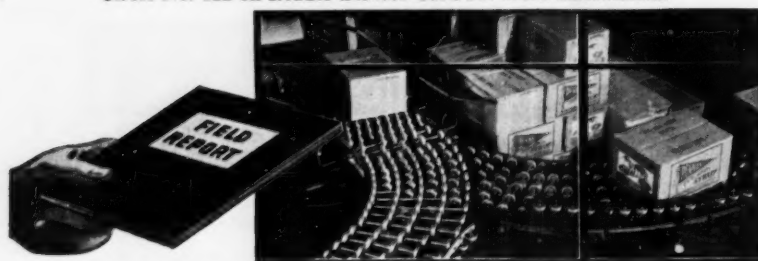
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175 BASKET	4 1/4 LBS.	18 1/4	9 1/4	6 3/4	11 3/4	7
220 BOX	11 LBS.	22 3/4	12 1/2	7 3/4	14 1/4	8 1/2
220 BASKET	7 1/4 LBS.	22 3/4	12 1/2	7 3/4	14 1/4	8 1/2

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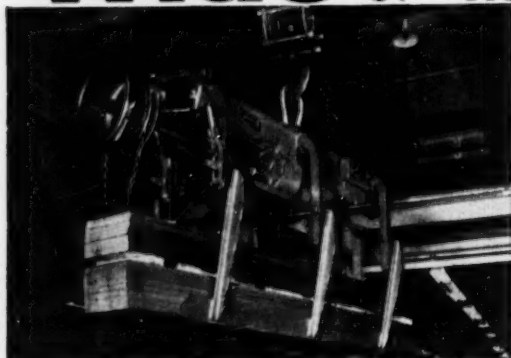
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Whether your production requires a few or many widths of sheet steel, 1 C-F Lifter, with its wide range of jaw and carrying angle adjustments will probably meet all your sheet handling requirements.

Adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes almost instantly.

Because it can pick up, carry and unload more loads per hour, using less man and crane time than any other method, a C-F Lifter will soon pay for itself.

Bulletin SL-28 gives you the complete story of C-F Lifter advantages to you. Ask for it today. There's no obligation.



CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

Circle No. 40 on Reader Service Card for more information

INTANGIBLES

Continued

plishing work. The moving work place in a flexible, continuous handling system is ideal for this analysis. It further enables a breakdown of complex operations into small unit operations where master craftsmen are not required. And it does this without requiring rehandling.

The writer would like to mention here again a change in the overall approach to the flow principle. Many industries went through a period where they either mechanized their handling completely or they did not. It was either black or white. Companies now are studying modifications which will give them the advantages of continuous flow and still not make them compromise on the best way to do the individual job. Simple things like this: an operator works for four hours a day on the assembly of a given part which flows before him on a continuous conveyor. After four hours, the production reverts to another product. Instead of having a lot of compromising tools and sub-assembly parts for both products at his work place, he simply moves over a few feet to another work center at that time and, although the same assembly line is used, his tools and sub-assemblies are strictly for the new product.

Again, an operator has to do a job that requires his product to be stationary while he works. A roller flight or a free shunt line from the continually moving production conveyor enables him to stop his fixture of work, do his job, remove his stop and still remain a part of the overall flow of the plant activity.

Think in Three Dimensions

Space is another factor that should be analyzed, both separately and as a whole, with the rest. The amount of production or activity we can accomplish in a given space is a very definite cost aspect. In this study we must be very careful to think in three dimensions as well as two. There is storage area overhead. There is sometimes

FEEDING A PRODUCTION-HUNGRY PLANT WITH A



One
Cubic Yard
"Spoon"

Feeding raw materials to a production-hungry plant is just one of many uses for the multi-purpose Allis-Chalmers HD-5G Tractor Shovel. It receives bulk materials, then carries them directly to mixing hoppers, conveyors or storage as needed. In addition, this powerful crawler excavates for new construction, handles coal, cleans up and loads waste . . . also clears snow and maintains yards and parking areas.

Interchangeable attachments, such as bulldozer blades, special buckets, lift fork, crane hook and trench hoe, add still further to its usefulness.

Tractor Shovels are also available on the three larger sizes of Allis-Chalmers crawler tractors, giving a range of standard buckets from one to four cubic yards — and up to seven cubic yards for light materials.

Let your Allis-Chalmers dealer tell you more about how you can mechanize your materials-handling the efficient tractor shovel way.



Keeps Production Moving—Fast!

The HD-5G feeds bulk materials in exact required amounts for uniform mixture — a full cubic yard at a scoop. In handling light materials, a two cubic yard bucket doubles output. Special fast reverse greatly speeds operation on short runs. This flexible tractor starts boosting production as soon as it's put on the job . . . no waiting for costly installations or changes in plant layout when you mechanize materials handling the Allis-Chalmers tractor-shovel way.



Receives Material at Plant

The HD-5G scoops a heaping load of any material at the unloading trestle, then delivers it directly to mixing hopper, conveyor, or storage area. Truck wheels, idler and support roller bearings are positively sealed against grit and moisture and require lubrication only once every 1,000 hours. This feature alone saves about 30 minutes' greasing time a day.



Builds Storage Piles—Anywhere

This fast-working tractor maintains large stockpiles in the open or under a protective shed. Crawler tracks provide traction and flotation to work right up on the pile, enabling it to put many more cubic yards of material into a given area. Tracks also give long life in cullet and similar material as only steel can.

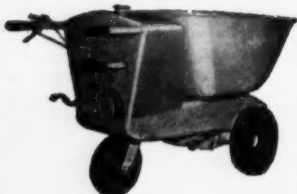
ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U.S.A.

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You can do it with One Man and a Prime-Mover!

Move your materials—bulk or packaged—with equipment not limited to specific jobs—Consolidate those intermittent handling jobs, outdoors or in confined areas—Supplement and relieve your specialized equipment and complete the mechanization of your materials handling.



If you're processing bulk materials—disposing of waste and scrap—using materials in maintenance or construction—shifting heavy maintenance equipment—maintaining grounds—or loading, unloading bulk or packaged goods from cars, toss your problems on the Prime-Mover and get the job done—quickly and economically.

Bucket and platform interchangeable in a jiffy.



Wisconsin engine powers an all enclosed gear drive to propel front wheels located under the load—(Up to ¾ ton.)

Passes through narrow aisles and doorways. Turns in own length. (6 ft.)

Does hard rugged jobs—up and down grades and over all types of surfaces.

THE PRIME-MOVER CO.
Muscatine, Iowa



Circle No. 119 on Reader Service Card

INTANGIBLES

Continued

storage area underneath. There are return lines that might be used. Conveyor systems and lift trucks all enter into this study and play their part.

An interesting problem always occurs where one press or fast producing piece of equipment has considerable setup time but, when once set up, can produce parts way out of proportion with the rest of the plant activity. These parts must necessarily be banked, and the more available they are to production and the least rehandling of them there is, the better. If they are stored in a two-dimensional setup right in the general activity of the plant, a separation immediately occurs between operations. This is not too good for all liaison handling activity. If parts can be stored above or below and on, say, an overhead trolley conveyor that makes them ever available for use and still not lengthen handling lines for other parts, there is overall value that should be measured.

Quality control, which permits interchangeability of parts and standardization—known as prime factors in the success of our mass production industries—should be studied carefully. In the many operations of processing, such as painting, cleaning and heat treating, the human element can enter in and slip if it is not fully mechanized. But where an operator has control of mechanical equipment that must express its activity accurately by gage and graph, he can continually stay on top of quality specifications.

Another intangible factor, in this connection, is the *spoilage of materials*. It is difficult to make an analysis of spoiled work in the present system versus a proposed system. Here, again, imaginative estimating in detail can help a great deal.

**Good Working Conditions
Produce Good Work**

The intangible factor of *general working conditions* has come forward by leaps and bounds in the last few years. Fortunately, mechanizing a particularly tough op-

don't take our word for it!

Just try a

GRIPPER WOVEN WIRE SLING

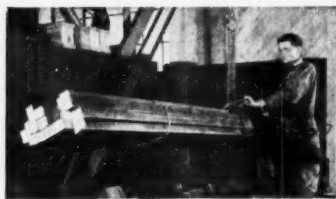
in your own plant and see if you don't agree it's the most amazingly versatile MATERIALS HANDLING TOOL to hit the market!

Use your Gripper sling for—



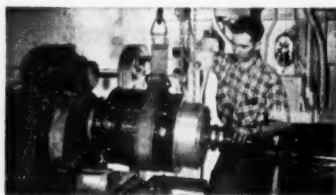
LIFTING

compact, heavy loads to and from delivery vehicles



MOVING

unwieldy long members into and out of storage racks



POSITIONING

parts for machining or finishing or for any other routine or special sling problem...anywhere in the plant

Gripper slings won't snarl or tangle, won't cut operator's hands with broken wires. They'll lift any load with ease and safety. Each sling can be used in basket or choke hitch.

WANT TO KNOW MORE? See your mill supply, safety equipment or materials handling dealer...or write for illustrated literature and application data.



The Cambridge Wire Cloth Co.

Dept. W • Cambridge 11, Md.



WIRE CLOTH

METAL CONVEYOR BELTS

SPECIAL METAL FABRICATIONS

Distributors—write for open territory data! Circle No. 29 on Reader Service Card

Circle No. 102 on Reader Service Card

New

MERCURY

INDUSTRIAL TRACTORS

Here it is...the completely new MERCURY "Banty." A small, rugged 4 wheel gasoline tractor with a turning radius of only 62". Features new double reduction drive axle with demountable wheel rim and tire assemblies...self-energizing hydraulic brakes...new semi-elliptic spring suspension, front and rear...cushion or pneumatic tires...all-new automotive type steering plus many other unusual features.



Model 460

"Banty" (Gas Powered)

Available in Two Capacities:
2300 and 3000 lbs. DBP.



Model 550

"Tug" (Battery Powered)

Available in Two Capacities:
2000 and 2500 lbs. DBP.

The compact, versatile, new MERCURY "Tug" electric tractor. Features *automotive type steering*...4-speed magnetic contactor control with timed acceleration and controlled plugging...new type double reduction drive with demountable wheel rim and tire assemblies...self-energizing hydraulic brakes and new type semi-elliptic spring suspension. Available in twin-3 wheel, or 4 wheel model with wide front tread.

MERCURY

FORK TRUCKS · TRACTORS · TRAILERS

Over 41 years experience in the manufacturing, designing, and installation of material handling equipment.

MERCURY MANUFACTURING COMPANY
4184 S. HALSTED ST., CHICAGO

GENTLEMEN: Please send me information on the following:

- ☐ "Banty" Tractor Model 460
☐ "Tug" Tractor Model 550
☐ Both "Banty" Model 460 and "Tug" Model 550

NAME _____

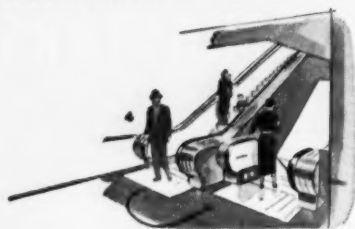
COMPANY _____

ADDRESS _____

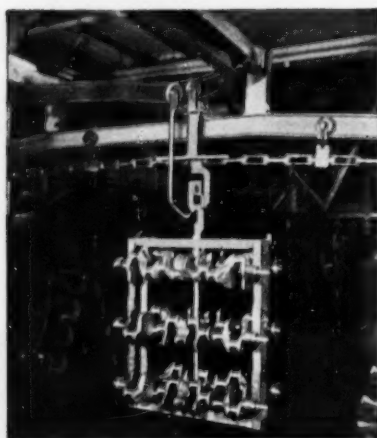
CITY _____

STATE _____

Trans-Free Automation



Trans-Free Conveyor System — automatically transfers loads from main Live Line to Free Lines—and back again.



One of the intermediate production stations in the Allied Trans-Free Conveyor System, showing a rack of parts being transferred from the Live Line to the Free Line.

At various locations production parts can be automatically removed from the main Live Line to adjacent Free Lines. At these points, intermediate production operations are performed. Upon completion, the loads are automatically transferred back to the main Live Line.

The Allied Trans-Free System is applicable to any type of product, large or small.

Allied are specialists on *Automation* and highly engineered *Load Transferring* material handling systems. Consult with our engineering staff on material handling problems that arise in your plant.



See Allied Catalog 952 in Sweet's Mechanical Industries or write us for a copy.

ALLIED
STEEL AND CONVEYORS, INC.

17357 HEALY AVE., DETROIT 12, MICH
Complete Material Handling Systems
Designed • Fabricated • Erected

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INTANGIBLES

Continued

eration invariably shows direct labor savings which can justify the move. If we have a general activity where we go to the trouble of providing good, modern sanitary conditions and restaurants . . . if we try to improve our floors to save the employees feet . . . if we paint our walls with soft, refreshing colors to better his day . . . and provide mechanical equipment to lift his 50 to 100 pound loads . . . then how can we afford a single "black hole" in the plant. How can we ignore a sand or paint or heat atmospheric condition if something can be done about it. Mechanizing the handling in these tough job areas, using conveyors in the processing—such as painting and bonderizing and heat treating—using automatic systems in foundries where sand and heat are present, go a long ways to bring about a completeness to our general purpose of

providing good working conditions.

The more the writer considers this subject, the wider its scope seems to be. The principles and factors above are placed unweighted in the discussion. There are many more to be considered, but the object has been to stress the need to look at your handling problem in two ways at once. First, as it effects the overall operation of your activity and, secondly, microscopically, both as to factor and as to activity. Only in this way can we approximate more and more the best.



"I keep forgetting this one lowers."

The Universal Drum Truck



Handling drums or barrels the COLSON Universal Drum Truck lets one man do the work of two. Any size container may be locked between the adjustable climb hook and pick-up tips. COLSON'S leverage lift prevents strain. Even heavy loads move easily on the 10" steel disc wheels with cushion rubber tires.

Other time and labor-saving COLSON Materials-Handling equipment includes hand trucks, platform trucks, Lift-Jack systems, and wheels and casters for every industrial application.



Write for Free Catalog on COLSON Materials-Handling Equipment

THE COLSON CORPORATION
ELYRIA, OHIO
CASTERS • LIFT-JACKS • INDUSTRIAL TRUCKS

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FLOW • NOVEMBER, 1953

**WATT HOURS REQUIRED BY FORK TRUCKS
TO TRAVEL ON LEVEL CONCRETE**

WEIGHT (TRUCK PLUS LOAD POUNDS)	LENGTH OF RUN (FEET)											
	50	100	200	300	400	500	600	700	800	900	1000	1100
1,000	1.8	2.5	4	5.5	7	8.5	10.5	12	13.5	15	16.5	18
2,000	3.5	5	8	11	14	17	21	24	27	30	33	36
4,000	7	10	16	22	28	34	42	48	54	60	66	72
6,000	10.5	15	24	33	42	51	63	72	81	90	99	108
8,000	14	20	32	44	56	68	84	96	108	120	132	144
10,000	17.5	25	40	55	70	85	105	120	135	150	165	180
12,000	21	30	48	66	84	102	126	144	162	180	198	216
14,000	24.5	35	56	77	98	119	147	168	189	210	231	252
16,000	28	40	64	88	112	136	168	192	216	240	264	288
18,000	31.5	45	72	99	126	153	189	216	243	270	297	324
20,000	35	50	80	110	140	170	210	240	270	300	330	360

**ADDITIONAL WATT HOURS REQUIRED BY FORK TRUCKS
TO TRAVEL UP EACH 1% OF GRADE**

LENGTH OF GRADE (FEET)	WEIGHT IN POUNDS (TRUCK PLUS LOAD)											
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000
10	.07	.13	.20	.26	.33	.39	.46	.52	.59	.65	.72	.78
15	.10	.20	.29	.39	.49	.59	.68	.78	.88	.98	1.07	1.17
20	.13	.26	.39	.52	.65	.78	.91	1.04	1.17	1.30	1.43	1.56
25	.16	.33	.49	.65	.81	.98	1.14	1.30	1.46	1.63	1.79	1.95
30	.20	.39	.59	.78	.98	1.17	1.37	1.56	1.76	1.95	2.15	2.34
35	.23	.46	.68	.91	1.14	1.37	1.60	1.82	2.05	2.28	2.50	2.73
40	.26	.52	.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	2.86	3.12
45	.29	.59	.88	1.17	1.46	1.76	2.05	2.34	2.63	2.93	3.22	3.51
50	.33	.65	.98	1.30	1.63	1.95	2.28	2.60	2.93	3.25	3.58	3.90
55	.36	.72	1.07	1.43	1.79	2.15	2.50	2.86	3.22	3.58	3.93	4.29

WATT HOURS REQUIRED BY FORK TRUCKS FOR LIFTING

LIFT (Inches)	LOAD (POUNDS)											
	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	11,000	12,000
12	1	2	3	4	5	6	7	8	9	10	11	12
24	2	4	6	8	10	12	14	16	18	20	22	24
36	3	6	9	12	15	18	21	24	27	30	33	36
48	4	8	12	16	20	24	28	32	36	40	44	48
60	5	10	15	20	25	30	35	40	45	50	55	60
72	6	12	18	24	30	36	42	48	54	60	66	72
84	7	14	21	28	35	42	49	56	63	70	77	84

MADESCO

Heavy Duty Blocks

**PROTECT YOUR WIRE
ROPE INVESTMENT**



Longer life for your wire rope can be secured with Madesco sheaves properly machined for the size of rope used. Madesco sheaves and blocks equipped with anti-friction bearings and bronze bushings combined with quality workmanship assure smooth performance. Special blocks for special needs made to order. A copy of our catalog is yours on request.

MADESCO

**TACKLE BLOCK
COMPANY**

EASTON, PENNSYLVANIA

Over a quarter century of service

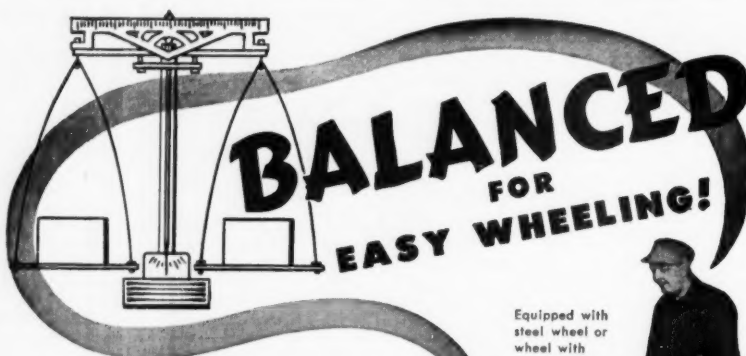
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SPECIAL ATTACHMENTS are not always needed for handling odd-shaped loads. A little imagination can often produce some amazing results. This household goods wholesaler developed a unique load stabilizer for handling vertical rolls of paper. Steel members attached to the carriage of the fork truck result in a "super backrest" which does not interfere with the handling of other types of pallet loads. The steel structure is removable when it is not required.

Courtesy Lewis-Shepard Products Inc.



You'll find it so easy to wheel heavy loads in Sterling Barrows. Only a minimum of effort is required. Sterling's perfectly balanced construction permits 80% of the load to be carried on the wheel . . . only 20% by the operator. This increases efficiency . . . allows more loads to be hauled each day . . . reduces hauling costs.

ORDER NOW!

**DEALER PLAN AVAILABLE.
WRITE FOR DETAILS.**

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Sterling

WHEELBARROWS



Look for this Mark of
STERLING Quality

Equipped with
steel wheel or
wheel with
zero pressure or
pneumatic tire.



Model C5W with
Pneumatic Tired Wheel
and Wood Frame.

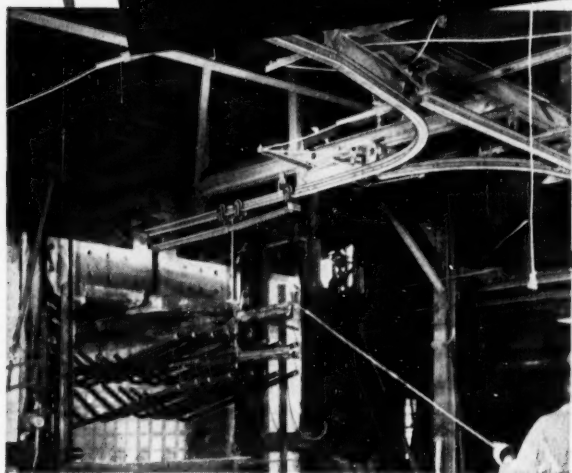
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FLOW • NOVEMBER, 1953

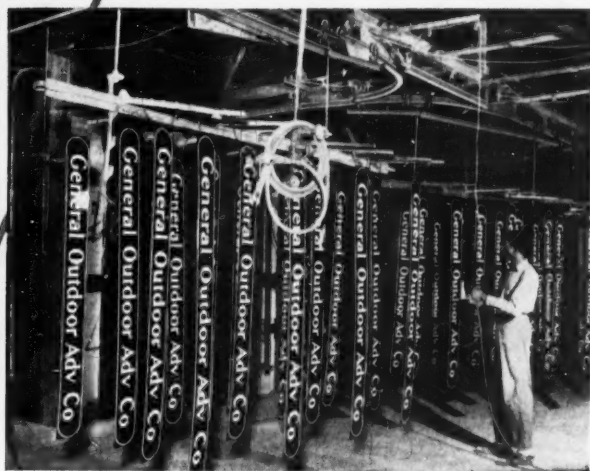
MONORAIL

eliminates rehandling

moves ware
through all processes
in porcelain
enamel plant



MonoRail over furnaces allow rapid in-out movement. Carriers made of special alloy withstand temperatures up to 1800° F.



MonoRail carries ware throughout entire plant with no rehandling from special carriers.

From start to finish, spraying to drying to firing furnaces and finally to storage one single MonoRail system provides a continual flow operation at this porcelain enamel plant. The same racks loaded at the spray booths carry the ware into and out of firing furnaces. Many of the handling operations once unavoidable are now eliminated. Savings in labor alone has fully justified the investment in this system. And true of all American MonoRail Overhead Handling Installations is the extremely low maintenance cost.

Why not let an American MonoRail engineer give you all the facts about savings and advantages?



SEND FOR BULLETIN C-1

AMERICAN

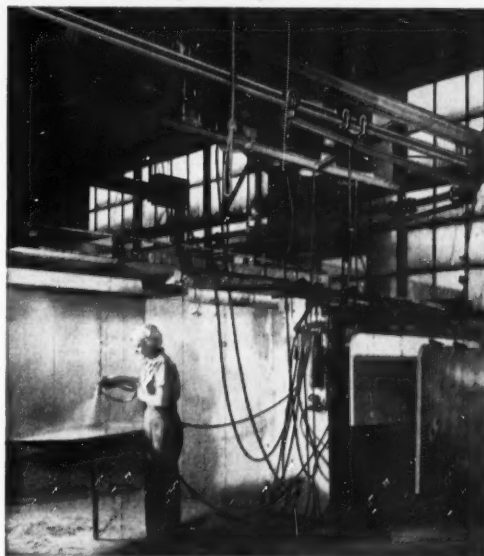
OVERHEAD
HANDLING
EQUIPMENT

MonoRail

COMPANY

13129 ATHENS AVENUE • CLEVELAND 7, OHIO

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Ground coat as well as a large variety of colors are used. Ware is hung on special MonoRail carriers after spraying.



Even Bronko Nagurski, former All-American fullback and now professional wrestling star, can't break it!

World's strongest tape?

"Scotch" Brand Filament Tape takes over dozens of reinforcing, banding and bundling jobs around the plant



REINFORCING these 57 lb. cartons is a cinch with "Scotch" Brand Filament Tape No. 880. Unlike conventional banding materials, tape doesn't cut in-to cartons or make loading difficult.



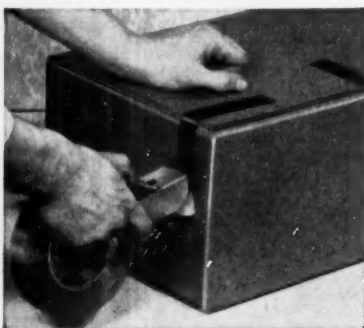
SECURING free end of huge sheet metal rolls is another job done faster, easier with "Scotch" Brand Filament Tape No. 880. Despite rough handling, only one strip of tape is needed.



BUNDLING veneer door rails, moldings, millwork and siding *safely* with "Scotch" Brand Filament Tape No. 880. Tape prevents slipping and sliding of pieces in bundles. Easy disposal, too!



BANDING and identifying tubing, conduit, and steel rod stock with "Scotch" Brand Filament Tape No. 880. Automatic banding equipment is available. Tape comes in red, white, black and transparent for color coding.



HANDY DISPENSER offers quick method of applying "Scotch" Brand Filament Tapes. For more information, plus a sample roll of tape for testing purposes, write Minnesota Mining & Mfg. Co., Dept. F-113, St. Paul, Minn.



Made in U. S. A. by
MINNESOTA MINING & MFG. CO.
St. Paul 6, Minnesota

The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive tapes made by the makers of "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.

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FLOW • NOVEMBER, 1953



PACKAGING and SHIPPING SECTION

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DEVOTED TO THE MECHANICS OF PACKAGING AND
PREPARATION FOR SHIPPING . . . MATERIAL HANDLING FUNCTIONS

An Easy Index to This Month's Advertisers

Are you looking for a particular type of packaging and shipping equipment? Listed below are advertisers according to the type of product they are advertising in this issue. We have attempted to make your job a little easier by listing them as often as possible. To use this index, find the type

of product in which you are interested . . . turn to the advertisers listed under that product . . . circle the correct numbers on the reader service card, mail it in, and you'll get complete information in a jiffy.

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STRAPPING, STAPLING AND STITCHING EQUIPMENT

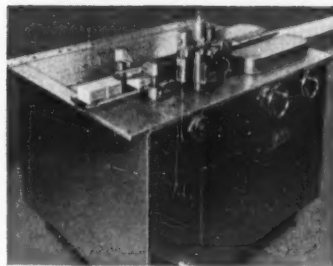
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WHAT'S NEW... in Packaging and Shipping Equipment

Redesigned Package Imprinting Machine

Redesigning of the Markocoder 3M automatic package imprinting machine, which prints identification data and code--dates on the top or ends of cartons and boxes as an integral packaging-line operation has been announced by Adolph Gottscho, Inc. Operating speed of the machine has been increased to permit imprinting of small cartons at rates up to 600 units per min. Length of the machine has been reduced from 72 inches to 54 inches. Greater versatility is claimed.

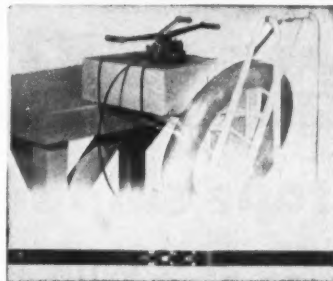
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Seal-less Strapping

Simplicity of application, economy, and great holding power are reported outstanding features of seal-less strapping developed by Inland Wire Products Co. In two simple operations, the machine tensions and cuts strapping and effects a mechanical interlocking tested consistently between 77 percent and 86 percent of the strength of the strapping itself. Coil holders and table dispensers are being made available.

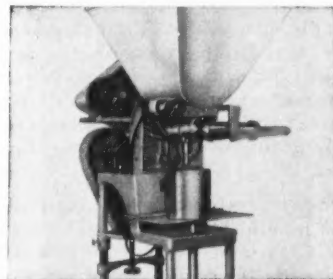
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Versatile Filling Machine

A semi-automatic filling machine that fills food, cosmetic, dairy, chemical, paint and similar semi-liquid and semi-solid products into all types of container including types has been developed by The Filler Machine Co. Inc. The Portable unit is said to fill accurately between 15 and 55 containers per minute on product and size of containers to be filled. Foot operation can be provided if desired.

Circle No. 187 on Reader Service Card for more information



Round Container Marker

This machine, made by Rotary Imprinter, Inc. marks code numbers and contents around cans and jars. According to the manufacturer, this imprinter will mark at the same production rate and as part of the labelling operation with no extra labor and no separate handling being required. Recommended uses are for identifying canned foods, chemicals, paints, aerosol products as required by govt. specifications, or to code cans and jars to identify date, batch or place of manufacture.

Circle No. 188 on Reader Service Card for more information
(Continued on page 120)





Photo courtesy Monarch Rubber Company

Stops shipping damage; cuts costs 46% with Brainard Strapping Service

WHAT would you do if shipments of your products continually arrived broken and damaged? This manufacturer of industrial tires called in the nearest Brainard Strapping System salesman, Rudy Schulz of Wooster, Ohio, for his ideas.

After following this shipping problem right into the boxcar, Rudy came up with specific recommendations, followed by a demonstration *on the job*. The old method of wood blocking was dropped. Now the pallets of tires are loaded tightly together and steel strapped to walls and to a special

bulkhead designed around the pallets.

Results—damage in shipment and costly claims have been completely eliminated. A source of customer dissatisfaction has been removed. Yet this improved shipping method actually has cut costs 46% per boxcar shipment.

Brainard salesmen are factory trained to give you *recommendations* and *demonstrations* that can improve the efficiency of your materials handling and shipping operations. Put Brainard's experience to work for you now. Offices located throughout the U.S.



New Portable Strapping Kit—the Brainard Utilikit is a completely self-contained, strapping outfit. Easily carried from job to job. Ideal for the small volume user. Write for booklet.

Write for complete information.
Brainard Steel Division, Sharon
Steel Corp., Dept. K-11, Griswold
Street, Warren, Ohio.



STEEL STRAPPING

Circle No. 162 on Reader Service Card for more information



Mirror Packaging Method

Packaging costs and damage claims were reduced simultaneously by Heywood-Wakefield Co., Gardner, Mass. with a new method of preparing framed mirrors for shipment.

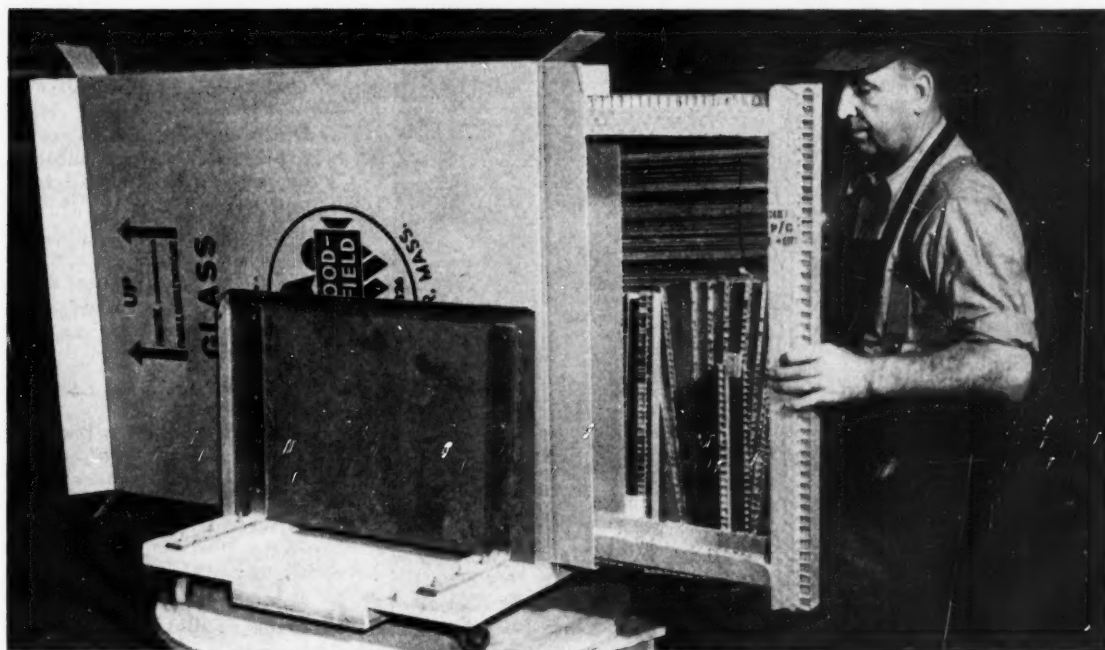
Key to the method is a honeycombed interior packing piece made of kraft paper. Four long narrow pieces

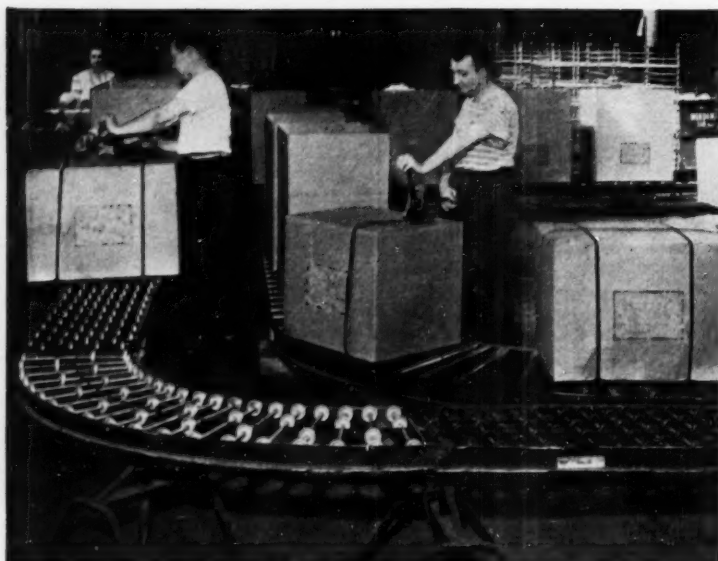
of the double-faced honeycomb with lengthwise slit scores fit over all four edges of the mirror's frame. With them in place, it is a simple matter to slide the whole assembly into a corrugated box mounted in a specially built rotating jig. The honeycomb maintains a one-inch space between the inside surface of the box and all parts of the mirror.

Through use of the new honeycomb material, and the packaging jig, the furniture manufacturer can now package an average of ten mirrors per hour compared to an old average of five mirrors per hour.

Mirror breakage during shipment, formerly a big problem, has been almost completely eliminated. Weight of the new package is 20 to 26 lbs. less than was the old one, with a resultant lowering of freight costs.

Courtesy Union Bag & Paper Corp.





STEEL STRAPPING applied around containers for shipping textiles results in a unit bundle in which the strapping is actually performing the function of a container. By the added support which it provides, strapping makes possible the use of less expensive containers which, although not meeting specifications alone, are adequate when in unit bundle form. As a result of this method, large amounts have been saved in packaging.



PRE-CAST BASE INGOTS makes these ingots self-unitizing. It is easy and practical for this company to actually strap the zinc ingots "hot", making their handling from the production line to shipping much faster. Design of the base ingot and use of 1 1/4-inch strapping permits fork truck handling.

Unitize

Six unitizing methods to suit practically any type of product or shipping condition.

- 1 Using the strapping in such a way that it virtually acts as the container for hard-to-package items.
- 2 Stacking rigid material in self-unitizing patterns.
- 3 Unitizing containers or products on returnable or expendable pallets and skids.
- 4 Equipping pallets or skids with jigs to aid in retaining the load as a unit.
- 5 Palletizing difficult-to-protect surfaces and easily damaged surfaces so as to protect against injuries during handling.
- 6 Using all corrugated unit loads (pallet packs.)

for Big Savings

A review of the basic types of unit loads plus some ideas on adapting them to practically any type of operation. Unitizing helps you to achieve better, less costly and faster shipping.

AS industry continues to grow, the mechanics of getting the product to the ultimate consumer safely, without loss or damage, becomes more important as well as more difficult. The complex nature of today's product taxes the material handling and packaging engineer's knowledge and experience to the utmost in designing a shipping method which will assure safe arrival at the destination.

The force behind the objectives of everyone involved in preparing products for shipment is clearly expressed in the motto of the National Safe Transit Committee. It states, "All manufacturing, engineering and quality efforts are in vain if the product reaches its destination in a damaged condition."

In this article, we will discuss "unitizing," which is only one of the many basic methods of packaging and shipping to insure safe transportation to the consumer.

Unit Bundles

Bundling may be defined as "the collecting together and strapping of a commodity for movement as a unit." For example, an individual bundle of asphalt shingles is a bundle. Where one or more of these bundles are strapped and of such weight or size that they must be handled mechanically, we refer to them as "Unit Bundles."

In a way, the span of containers used by industry can all be classified, if strapped, as unit bundles. Such items as parcel post and express packages, fibre containers, crates, partial crates, wooden boxes, bundles, bales, pallets and skids all can fit into that category. For our discussion, however, unit bundling will be restricted to the area of bundles, pallets and skids.

A study of packaging practices shows that so-called "palletizing" covers a wide area, yet that it limits a true concept of this packaging activity. We should like to introduce the word "unitizing" as being more inclusive and more appropriate in this specialized field.

The function of unit bundling can be described in that single word. Unitizing reduces handling costs by enabling shippers to move more material or products in less time.

Advantages of Unitizing

The advantages of good material handling have been repeated often, and are familiar to all of us. Such advantages, re-phrased slightly, apply equally well to unitizing.

In other words, unitizing permits:

1. Full use of mechanical handling equipment.
2. More efficient use of warehouse floor space.
3. Elimination of individual containers as such, and the individual handling which they require.
4. Increased protection for products shipped.
5. Faster in-plant, intra-plant and warehouse handling with elimination of most personal injury hazards.
6. Easier and faster loading and unloading into and out of railroad cars and trucks.
7. Faster counting and inventory record-keeping.

The principle of unitizing is easily recognizable as being: more efficiency in handling a commodity as one large unit rather than many small items or bundles.

Basically, there are six types of unit bundles, each with economies inherent in them. Let us take a close
(More on next page)

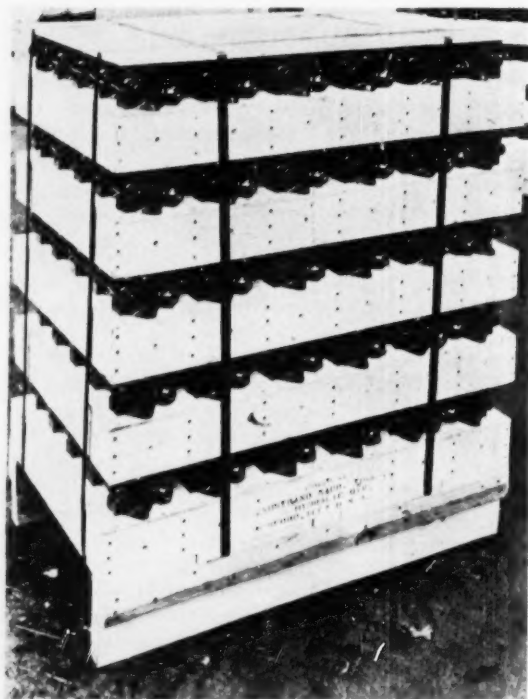
by James R. Williams
Signode Steel Strapping Co.



UNIT BUNDLE consisting of a number of items strapped to skid eliminates multiple handling of individual containers and makes shipment to the customer faster and less expensive. Here, a single unitized group of coils replace eight individual containers.

Unitize for Big Savings

Continued



SPECIALIZED TRAYS or jigs provide an easy way to overcome difficulties of unitizing irregular objects. This pallet of 150 oil pumps is shipped with a shroud to protect the pumps from grit and dust. It has drastically reduced time required for packing and unpacking.

look at each:

- A.** Unit bundles of hard-to-package items where the strapping around them, in effect, acts as a container. For example, bundles of springs, K.D. millwork, and partial crates of steel siding. All of these may consist of a single unit with the steel strapping doing the job of a container. In some instances, the bundles may be partially crated, or they may be fully crated.

Generally, such bundles are handled by hand, but they may be of such weight that they must be handled mechanically.

Early in the history of fibre containers and their securement with steel strapping came a rate decrease for textiles. It was found that sub-standard containers could be used successfully when they were properly reinforced with strapping. Unitizing of large containers of textiles is now common, and many thousands of dollars of savings are being realized in packaging by textile mills.

- B.** Self-unitized loads. These are generally machine size bundles of rigid material which, being self-supporting, need no special platform. In some instances such loads have their own platform or appendage to facilitate mechanical handling.

For example, let us consider a bundle of ingots.

Unitizing for one company which produces ingots is a simple matter. Bases for unit bundles are pre-cast from the same material as ingots which are to be unitized. The ingots are stacked and strapped "hot" making handling from the production line much faster. The strapped units are



Not when you use KIMPAK* 301 !

New KIMPAK 301 is the practical solution to appliance surface scratching and other marring damage. KIMPAK 301's ability to shield the fine finish from abrasive high spots on the inner walls of cartons and blocking and bracing members of crates makes it the ideal protective agent in an appliance package. And KIMPAK 301 costs no more than ordinary materials. It is specially designed to prevent the three major causes of scratching:

1. Abrasiveness of the inner spacers. Kimpak 301 provides a scratch-free, non-disintegrating, compressible barrier between inner spacers and the appliance finish. Its conformability ensures a snug package.

2. Dust, dirt, cinders that sift into the container. The combination of high creping and porous structure—exclusive with KIMPAK—traps dirt, grit or cinders, which may lodge between the packaging material and the surface.

3. Abrasive action of harsh packaging materials. KIMPAK 301 is soft and non-abrasive . . . free from wood splinters, dirt and other abrasive materials. No lumps, hard glue spots or stiff wrinkles.

Scratching is but *one* of many problems encountered in appliance packaging. These problems are solved with KIMPAK 301. For more details, contact the KIMPAK distributor in your area, or mail coupon below.

SPECIFY KIMPAK 301 TO SOLVE THESE INTERIOR PACKAGING PROBLEMS:

- Scratching
- Pressure-marking
- Staining
- Corrosion
- Conformability
- Ease of handling
- Appearance
- Disintegration

Whatever your protective interior packaging requirements, there is a Kimpak specification that does the job . . . better!



A Product of
Kimberly-Clark

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin

Dept. FL-113

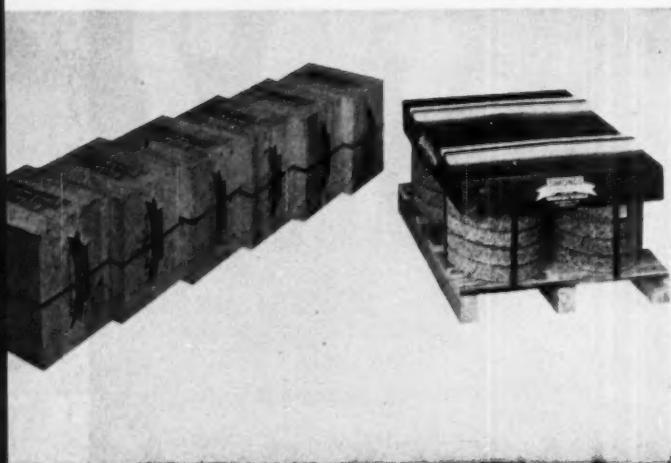
We would like to learn how new Kimpak 301 can provide better protection at lower cost for our products. Please send complete information.

Name.....
Firm Name.....
Street Address.....
City..... Zone..... State.....

Circle No. 80 on Reader Service Card for more information

Unitize for Big Savings

Continued



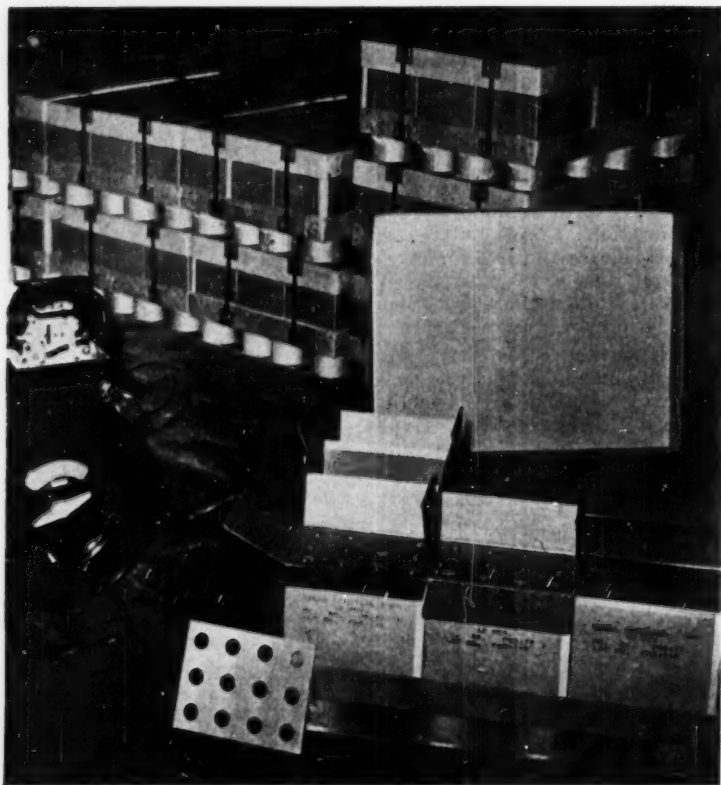
SPECIAL PROTECTION is often needed for lading with vulnerable surfaces or which can be dented or scratched easily. Savings of about 50% resulted for Simonds Abrasive Co. when it switched to the unitized method of packaging wheels. (right). Complete protection is provided for edges and vulnerable surfaces.

handled by fork truck without the aid of any other handling devices.

- C. Unit Bundles of containers or products on returnable and expendable pallets and skids. Our discussion is concerned with materials collected together and placed on a platform, which, within our definition of unitizing, will not stay on a pallet or skid unless steel strapping is applied. This statement immediately establishes that there are many skids or pallets of material being shipped today on which no strapping is or should be used.

Variations in pallets and skids run from the returnable pallet through the expendable wood and paper pallets. Skids may be expendable or returnable, some even being of metal. Variations of skids may be found in shipping rigid commodities where the item itself forms its own platform. In this event, it is only necessary to use a runner or stringer for fork entry in fork-truck handling. The strapping will be applied under the runner, holding it to the unit after tensioning and sealing.

The type of unitizing discussed in this section and its advantages are illustrated by a method of



ALL CORRUGATED UNIT LOADS (pallet racks), are advanced method of saving on containers, manpower, time and pilferage. The unit loads above consist of posts, bottom and top caps and individual containers secured with strapping. They lend themselves to mechanical handling.

packaging devised by Kennecott Wire and Cable Co. Copper coils were formerly packaged individually in containers. Now, the coils are stacked eight to a skid and strapped tight. Shipping is by truck and skids are returned to Kennecott.

The cost per coil in individual containers was \$.59. On skids, that cost has been reduced to \$.26. In addition, a 70% labor cost reduction resulted. Also, customers favored the skid since it can be unpacked quickly.

- D.** Pallets or skids with jigs to aid in retaining a load as a unit. Round and irregular items present considerable difficulty in unitizing. Many products would miss the advantage of unitizing if there were no jigs or combinations of other unit bundling systems to help out. In planning unit bundles of this sort, it is important to consider various stacking patterns. Strong and weak points in construction of the product must be known, and for many items, it is important to know the standard unit of sale.

An oil pump manufacturer devised a special type skid with interlocking trays for shipment of his product. Each tray was specially designed as a jig to hold 30 pumps, with five trays making up a complete skid load totaling 150 pumps. The complete skid is fully unitized, compact and ready for shipment.

Because the pumps are vulnerable to dirt and grit, a paper bag is slipped over the completed unit bundle. Handling is by electrical-ly powered hand trucks.

- E.** Pallet or Skid-loads of materials presenting problems of protection of surfaces and corners against injury. In this category you will find any lading with vulnerable surfaces or those which can be easily dented or scratched. In the past, it was always necessary to ship this type product in individual containers with special protection built in. Now, they can be shipped on pallets or skids through adaption of protective devices.

Simonds Abrasive Co., with a product in this group, has made remarkable progress in the field
(Continued on page 114)

How MEAD POKE-PAK*

works to cut costs
for those who receive
goods in multiwall bags

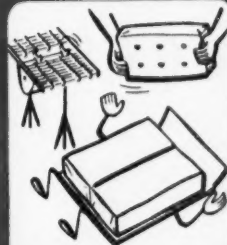


Showered with treated
bags, ready for im-
mediate use.

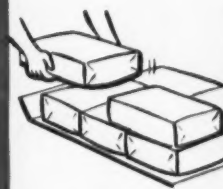
25 bags can
be stored in the
space needed
for one pallet.



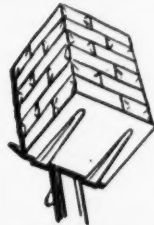
Multiwall bags are
easy to handle.



Load is unitized with
bag-ties or strapping.



Load is stacked with in-
terlocking pattern.



Load is securely fixed
on a skid.



Safe unitized loads are
easy to move. No turn-
over.



Bags are easily trans-
ferred without damage.



Multiwall bags are
easy to handle.

These advantages will save you money from the day you begin receiving loads unitized on MEAD CHESTNUT POKE-PAK. Over the business year, they will add up to substantial gains from lessened claims, and demurrage, faster release of unloading facilities, easier and more accurate inventory taking, cleaner plant. If you receive materials in multiwall bags, there is no surer economy than to unitize on POKE-PAK. Write for an illustrated folder on the advantages of MEAD CHESTNUT POKE-PAK.

MEAD BOARD SALES, INC.
LYNCHBURG 3, VA.

Offices: Cincinnati • Chicago • Newark

MEAD
board

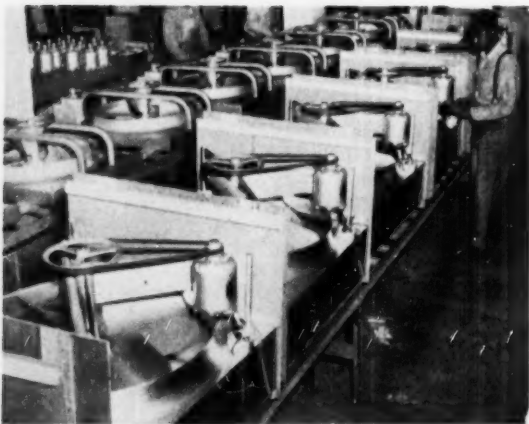
Circle No. 100 on Reader Service Card for more information

Shipping Container

Ties in Production of Two Plants



TOP AND BOTTOM of wirebound box is bolted to fan shell in the plant where they are made. Wirebound mat is then wrapped around to form shipping container for transportation to assembly plant in Memphis.



ON THE ASSEMBLY LINE, top and bottom pieces of shipping containers, still bolted to fan shells, serve as work holders. Mats have been removed and are waiting at end of assembly line for re-use in shipping.

A packaging idea at Hunter Fan and Ventilating Co., Memphis, Tennessee makes it possible for that company to ship out completely packaged ventilating fans, and yet carry no inventory of shipping containers.

Here's how they do it . . .

Shells of the fans which the Hunter firm assembles are made in Indiana and shipped to Memphis for complete assembly. In the Indiana supplier's plant, fan shells are packed in wirebound boxes consisting of top, bottom and a mat which comprises the four sides of the container. The top and bottom pieces of a container are bolted to the fan shell which will be contained. Then, the mat is wrapped around and closed.

At the Hunter factory in Memphis, the wire loops which hold the container closed are unfastened and the wirebound mat is removed. The fan shell, with top and bottom still attached, is then sent through final assembly operations. When the completed product

(Continued on page 115)



COMPLETED VENTILATING FAN is wrapped in wirebound mat which is one which contained fan shell shipped from Indiana to Memphis. Only container storage is for mats removed at start of assembly.

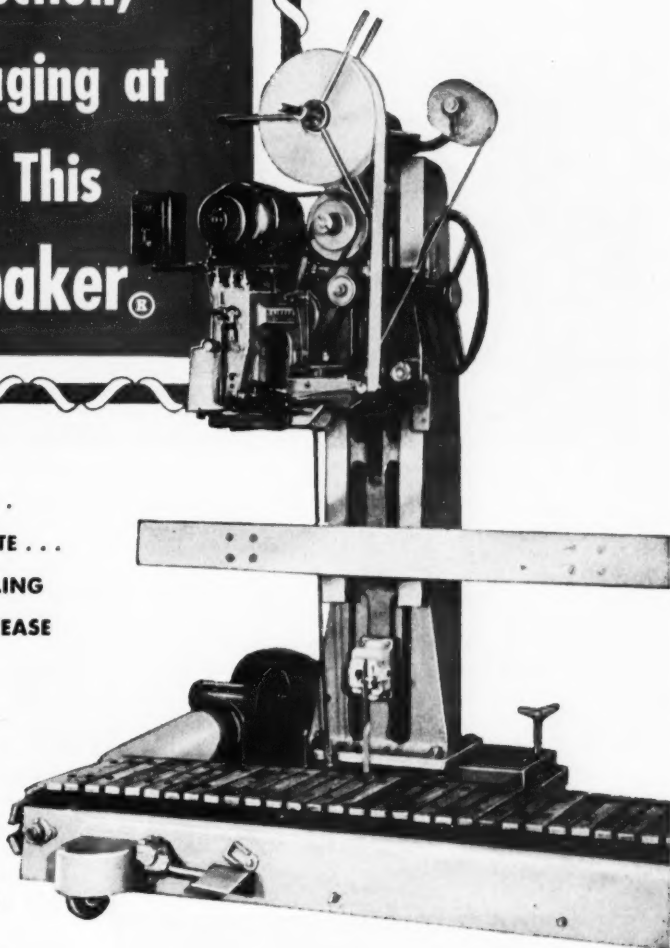
Get Better Protection, Faster Packaging at Lower Cost With This Model ET Bagpaker®

**CLOSES OPEN-MOUTH, MULTIWALL
PAPER BAGS SEMI-AUTOMATICALLY . . .
TAPES AND SEWS 15 BAGS A MINUTE . . .
TEAMS UP WITH YOUR EXISTING FILLING
AND WEIGHING EQUIPMENT TO INCREASE
PACKAGING EFFICIENCY**

You don't have to scrap your present equipment to get *stronger*, more *economical* bag closures with this Model ET Bagpaker. One man—receiving bags from your existing weighing and filling set-up—applies creped "kraft" sealing tape over the bag end...sews a reinforced "cushion stitch" through both tape and bag...and neatly trims tape...time 4 seconds or less. Dimensional drawings and detail information are available in Booklet ET-L-12. Write for your copy *today*. Bagpak Division, International Paper Company, 220 East 42nd St., New York 17, N. Y.



Model ET applies famous "Cushion-Stitch" over dry tape for sift-proof closure. Model E-1 applies "Cushion-Stitch" only, for use where sift-proofing is not essential.

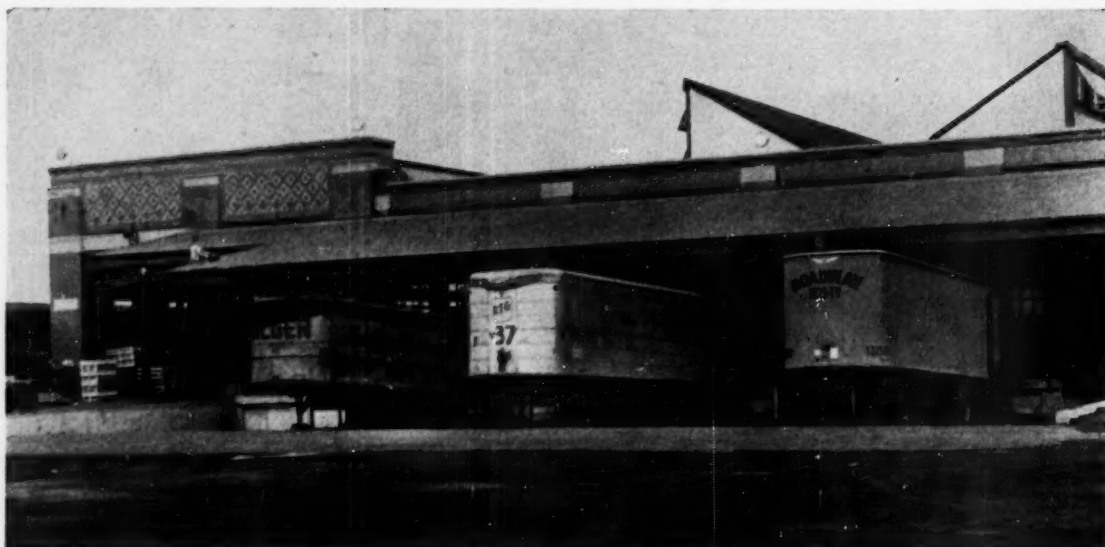


Check These Model ET Bagpaker Advantages

- ★ 15 bags per minute with one operator when filled bags are continuously delivered to conveyor.
- ★ Quickly adjustable for bags of from 25 to 100 lb. capacity.
- ★ Completely portable. Mounted on casters, can be moved easily to various packaging stations.
- ★ Bag starts and stops sewing head when equipped with automatic sewing head control.
- ★ Hoepner No. 150 Heavy Duty sewing unit with automatic brake to prevent "coasting".

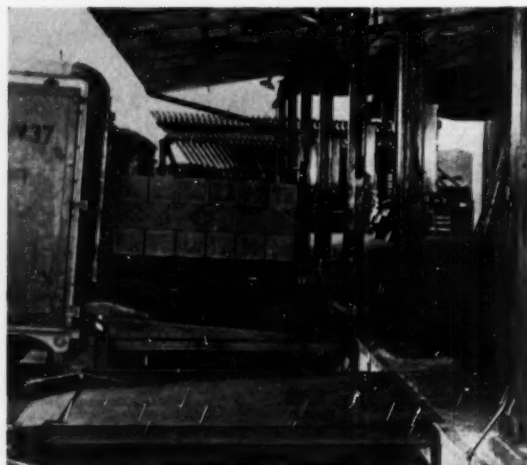
International **P**aper COMPANY
BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston
Chicago • Cleveland • Denver • Detroit • Kansas City, Kansas • Los Angeles
New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • IN
CANADA: The Continental Paper Products, Ltd., Montreal, Ottawa, Toronto
BAGPAK DIVISION

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New Docks at Old Plant

. . . speed shipping
. . . improve handling



ADJUSTABLE HYDRAULIC RAMPS are hinged to edge of docks to prevent using up any of limited space on the docks. Now, powered industrial trucks can move about freely and can take loads directly into truck bodies for loading.

NEW TRUCK DOCKS at Chicago Assembly Plant of Ford Motor Co. were built when principal mode of transportation to and from plant changed from railroads to trucks and trailers. It provided a solution to not only the plant's shipping problems, but helped to make possible newer and better material handling methods.

WHEN the Chicago Assembly plant of Ford Motor Co. was built in 1924, the majority of incoming and outgoing goods was moved via rail car. For that type of transportation, railroad sidings had been installed on either side of the 1365 ft. long building.

Since that time, there has been a change in the principal method of transportation and trucks and trailers now carry most of the merchandise. As a result, the formerly adequate dock facilities proved inadequate, and handling throughout the plant was hindered.

The first step in a modernization program was the building of new truck docks. Because of the limited area within the assembly building, the new docks were constructed as an addition to the main structure and extend out into the plant yard. Being adjacent to plant production areas, they provide an ideal arrangement for minimum straight-line flow. Eight truck trailers can be accommodated simultaneously at the docks which have a total width of 30 feet. Docks are covered to protect personnel handling equipment and loads.

To obtain greatest use of the docks regardless of the type truck or trailer being loaded, adjustable ramps were installed. Instead of placing the ramps in recessed areas in the docks, as is common, Ford had them placed in front, and hinged to the dock-edge. As a result, they do not interfere with normal vehicular and foot traffic and do not use up valuable dock storage space.

Each ramp is self-contained with its own packaged power mechanism consisting of motor, pump, reservoir, and valves which are installed on the underside of the deck of the ramp. The deck is equipped with a throw-over bridge plate that reaches into the trailer

(Continued on page 115)

*A little goes
a long way
when you...*



Tape it with Behr-cat®



Whether it's going across the country . . . or just across the street, your shipment gets out faster and easier when you tape it with BEHR-CAT.

Unbelievably strong, this filament-reinforced tape is helping to simplify industrial shipping. Application is as simple as ABC. It sticks and grips at a touch without wetting. It needs no special tools or skills to apply and customers like it because they can unwrap in a jiffy. Yet its great strength makes it immune to shocks and jolts. Packages stay firm no matter how long or rough the trip. BEHR-CAT is a natural for sealing cartons, wrapping wire coils, tubing, lumber, plate glass, and banding metal parts.

The only way you can see for yourself is to try a roll. There's one here with your name on it. Just ask for it on your letterhead. Write us today. Behr-Manning Corp., Troy, N. Y. Address Dept. FL-11

In Canada: Behr-Manning (Canada) Ltd., Brantford.

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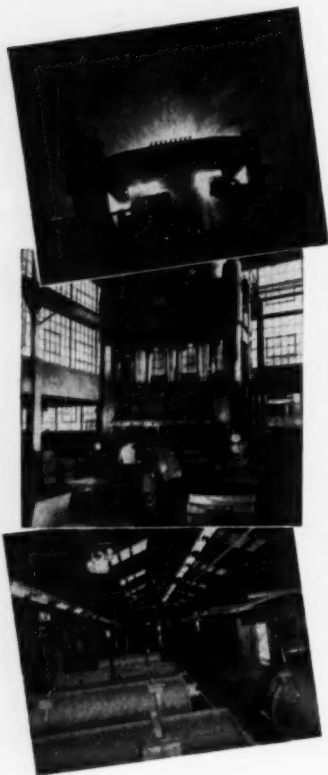


BEHR-MANNING
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- ▲ COATED ABRASIVES
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- ▲ PRESSURE-SENSITIVE TAPES

GEARED TO PRODUCE for YOUR SHIPPING NEEDS



No matter how large or how delicate your product . . . how exacting your specifications—Champion is geared to engineer and produce. You can save shipping costs by using Champion hermetically sealed shipping containers because:

- Containers are reusable.
- No special preparation necessary before or after shipment.
- Containers are dirt-proof, moisture-proof, shock resistant.

WE SPECIALIZE IN THE IMPOSSIBLE

LET US HELP YOU
WITH YOUR SHIPPING PROBLEMS

**THE CHAMPION
COMPANY**

SPRINGFIELD 99, OHIO

Circle No. 32 on Reader Service Card
112

Strapping Pioneer

Marks 40th Anniversary

Signode Steel Strapping Co., one of the pioneers of the tensional steel strapping industry celebrated its 40th anniversary on October 22, and at the same time dedicated a new \$1,500,000 plant.

The new plant, located in Weirton, West Virginia, contains a 38-inch splitter line, a 15-inch slitter line, a strap painting line, a seal manufacturing unit, machine shops, warehouse facilities. Manager of the plant is Arthur F. Armstrong.

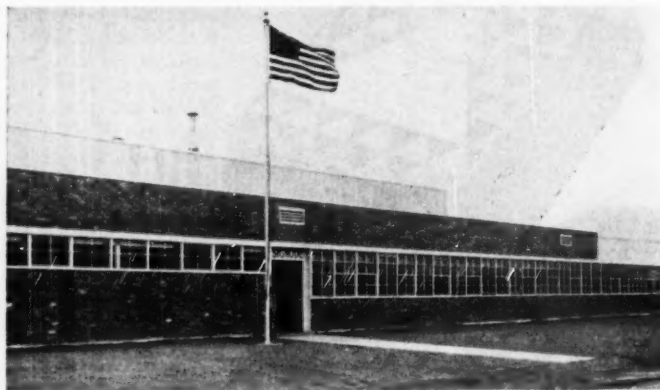
Signode began business with a half-dozen employees working in a "factory" that contained only 300 square feet of floor space. The tools and strapping methods produced by the company caught on rapidly, and expansion came rapidly.



FIRST TOOLS made by Signode Steel Strapping Co. for tensioning and sealing strapping. These were invented in 1912.

Today, Signode has factories in Chicago, Baltimore, and Weirton, 11 warehouses, 47 sales offices, 65 foreign subsidiaries and distributors and over 1000 employees. Some 100 tools are presently standard in the line including a recently introduced line of fully powered and automatic strapping machines that will strap containers speeds up to 600 straps per hour.

Originally, the company was known as "The Seal and Fastener Co." In seeking a more distinctive name "Signode" was devised. It was suggested by the two latin words Signum, meaning sign, seal or trademark and Nodus, meaning knot.



NEW PLANT dedicated by Signode Steel Strapping Co. as part of its 40th Anniversary Celebration. Located at Weirton, West Virginia, the plant houses new strap splitting equipment, seal manufacturing facilities, warehouse space, etc.

**Entiat
Apples
move to
market
faster**



with an International Stapler Conveyor

From the Entiat Warehouse Company, apple packers in Entiat, Washington, comes another big story about INTERNATIONAL Staplers in action. Like many fruit and vegetable growers from coast to coast, Entiat reports better closures, faster closing, lower packaging costs, reduced fruit damage, less pilferage and better working conditions.

This company first became acquainted with INTERNATIONAL Staplers when they purchased an INTERNATIONAL BOXER, a hand stapler. Results from this manually-operated equipment were so favorable, this apple packer decided to install an INTERNATIONAL stapler conveyor unit.

Says W. Grant Scofield, Manager:

"Before we installed INTERNATIONAL Staplers, we closed our apple boxes by hand. This required a lot of space, and many manhours of labor. Moreover,

we found that no two boxes were closed alike."

During the last packing season, this apple grower installed a new INTERNATIONAL Stapler Conveyor Unit. Mr. Scofield reports that not only are Entiat apple boxes closed more uniformly, but his new INTERNATIONAL Stapler takes less space—the entire closing operation is now handled by one man. As for speed and versatility, let Mr. Scofield tell you:

"We close the full size apple box, the half size apple box and the quarter size apple box. Our new INTERNATIONAL Stapler machine can be changed from one size box to another in a few seconds."

Join the carton-closing parade—use INTERNATIONAL. You'll find modern, versatile packaging equipment ready and able to cut your costs and build your profits. Ask for Bulletin C/201.

a seal of security —



INTERNATIONAL STAPLERS

International Staple & Machine Company
808 East Herrin Street, Herrin, Illinois

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SIMPLIFIED



packing storage shipping

Work was simplified and savings made possible when the Stanley Steel Strapping System was used at The Bassick Company's South Plant, Bridgeport, Conn.

Casters formerly packed in unwieldy barrels now are packed in lightweight cartons, steel strapped and quickly stored by sizes. On shipment, orders are filled faster, cars or trucks loaded easier. Maximum protection in transit is provided. Bassick distributors save time and money in storing and re-shipping to their customers.

In almost every type of plant — with almost every type of product — substantial savings are being made in packing and handling by the Stanley Steel Strapping System. Call in the Stanley Packing and Shipping Engineer. He'll install the Stanley Steel Strapping System on a 30-day trial. No obligation . . . mail coupon.

STANLEY STEEL STRAPPING SYSTEM*

*A MAN thoroughly experienced in steel strapping applications — the Stanley Packing and Shipping Engineer.

A METHOD adaptable to any requirement — the Stanley Steel Strapping System with representatives in 32 principal cities.



HARDWARE
TOOLS
ELECTRIC TOOLS
STEEL STRAPPING
STEEL

THE STANLEY WORKS, 202 Lake Street, New Britain, Conn.

- ☐ Yes — the 30-day trial interests me. Have the Stanley Packing and Shipping Engineer call.
☐ Send full information on Stanley Steel Strapping System.

(Please write name and address below)

Circle No. 140 on Reader Service Card for more information

UNITIZE . . .

(Continued from page 107)

of unitizing. Through careful planning, they have been able to replace as many as six expensive containers with one pallet.

Simonds ships 38 different size wheels on three standard single face pallets and four pallet type crates. Decisions as to whether to ship in wooden boxes, pallets or crates are made after a study of the ability of any customer to handle a particular one. The abrasive products manufacturer prefers to ship by pallet since the savings over the old method are about 50%.

F. All Corrugated Unit Loads, (pallet packs). This is probably the most advanced method yet developed for saving containers, manpower, time and for prevention of pilferage. Generally, it consists of a large container with some sort of supporting structure that goes along with the load, and is particularly successful for shipment of fragile items. The unit is started with a pallet, followed by a tray, sleeve, cap, and finally steel strapping to hold all together.

Corrugated unit loads have been used by the Harwid Co., Cambridge, Mass., to save from 80c to \$2.80 a pallet on shipments on rolls of polyethylene film. Previously, rolls were packaged individually in cartons. The cost of material for a pallet load now runs \$4.08 as compared to \$6.88 for material to ship an equal amount under the old method.

In each of the preceding six reviews of ways of unit bundling, a great deal more than just palletizing has been discussed. Unitizing is a method of packaging which includes determination of the correct container, protective means, and handling method to be used.

In its wide scope, unitizing affords industry great latitude in economical shipment of products. Within the six basic types of unit bundles we have covered, there are solutions to shipping requirements of individual plants within a great variety of industries, regardless of differing problems.

SHIPPING CONTAINER . . .

(Continued from page 108)

emerges from the line, it is once again wrapped in a wirebound mat and taken directly to the shipping room. The mat enclosing the completed unit is one of those which were shipped from the Indiana plant and conceivably could be the same one which originally contained the fan shell.

As a result of this ingenious system, Hunter Fan and Ventilating Co. need not concern itself with the storage of shipping containers; work holders for the assembly line are the top and bottom pieces of the shipping container, reducing production costs; completed ventilating fans are shipped in safety with in-transit damage at a minimum.

NEW DOCKS . . .

(Continued from page 110)

body for effortless transfer of goods to and from the truck body and the dock. Each ramp has a 20,000 lb. capacity.

As a result of the new docks and the hydraulic ramps, powered industrial trucks can now move back and forth on the docks without interference, and can travel right into highway carriers for loading or unloading. Time required for loading carriers has been reduced to a minimum, and congestion which might result from piling up of material waiting to be loaded is eliminated.



"Well... who started it this time?"



IT'S THILCO'S NEW, TOUGH *Machine Creped, Elasticized* **Wrap-DRI PAPERS—TYPE MR AND JR**



STURDY 30 LB. KRAFT
COATED WITH ASPHALT
ON BOTH PLIES

EVENLY FORMED
MAT OF TWISTED
THILCO FIBRES

NOTE EXTRA
EDGE STRINGS FOR
TEAR RESISTANCE



Get this
FREE
brochure

New, dispersed fibre reinforcing for unusual toughness and strength — plus machine creping for extra flexibility and cushioning... That's the combination that makes Thilco's type MR and JR asphalted waterproof papers your best bet for economical, heavy-duty protective wrapping. With Wrap-Dri you get three-fold packaging superiority —

1. **FLEXIBILITY** — Extra pliability and ease of handling speeds up wrapping production — cuts skyrocketing labor costs.
2. **CONFORMABILITY** — Added stretch and moldability permit snug-tight wrapping of the most irregularly shaped products.
3. **EXTRA STRENGTH** — Machine creping with its cushioning effect, built-in-stretch base kraft, flexible double-coated laminants and reinforcing fibres with edge strings, all add up to superior strength — higher resistance to puncture and tear.

There's a Wrap-Dri grade for every need. Type MR machine creped for a heavy duty and JR machine creped for utility use — both available in wide widths up to 10 ft. without lap or seam. Wrap-Dri gives excellent M.V.T. protection and can be furnished mold-proofed or "special treated" to meet most any specific requirement — plus print decorating for product identification. Write for new fact folder today!

Thilco

Functional Papers FOR PROTECTION THAT COUNTS!

NEW YORK • CHICAGO
CINCINNATI
DETROIT • MINNEAPOLIS

THILMANY PULP & PAPER COMPANY
KAUKAUNA • WISCONSIN

Circle No. 146 on Reader Service Card for more information

MEN IN THE NEWS . . .

(Continued from page 40)

. . . at Marietta Concrete Corp.

John R. Snowball has been named consulting engineer for the company, according to Frank L. Christy, president. Snowball is an authority on structural concrete and had been associated with the Portland Cement Association in Columbus since 1940.

. . . at American Box Co.

To facilitate company-wide expansion activities, Z. R. Meredith, noted accounting authority, has been named comptroller for American Box and its subsidiary, American Wood Products Corp., according to George H. Kubes, president.

. . . at United States Rubber Co.

The appointment of Alton D. Fordham as assistant production manager of the com-

pany's footwear and general products division was announced recently by C. J. Noonan, vice president and general manager of the division. He has been with the company since 1937.

. . . at Heppenstall Co.

Edward D. Fagan has been appointed sales manager for material handling equipment. He joined the company in 1942 as chief draftsman and acting chief engineer at the Eddystone, Pa., plant. In 1952 E. D. Fagan he was made plant engineer at Eddystone when the plant was reactivated for the Air Force.



. . . at Fruehauf Trailer Co.

Gordon E. Dean, retired chairman of the Atomic Energy Commission, has been elected to the Fruehauf board of directors, according to Roy Fruehauf, president. Dean retired from the AEC last June 30 to enter private business. He had directed the Nation's 12-billion dollar atomic energy program for four years.

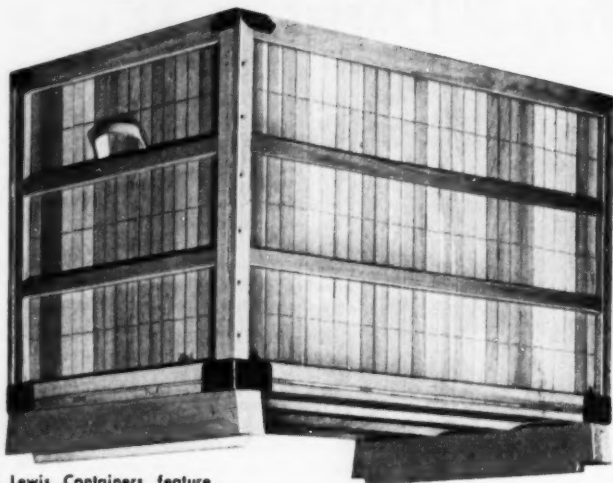
. . . at Evans Products Co.

James R. Byrne, former assistant operations manager in the railroad loading and equipment division, has been named assistant sales manager of that division. He has been with Evans since 1947 and before joining the railroad division was traffic manager for the company.

. . . at Hinde & Dauch Paper Co.

The appointment of Rome P. Busa as office manager of the Cleveland plant has been announced by G. M. Muehlhauser Jr., treasurer. Prior to his appointment Busa had been an accountant for the company since 1950.

THIS IS A LEWIS *Skid Box . . .*



All Lewis Containers feature select elm slots bound in sturdy steel wire. Hardwood frames are locked by dove-tailed joints and reinforced with heavy corner irons.

SKID BOXES
STACKING BOXES
BOX TRUCKS
MASONITE BOX TRUCKS
FOLDING BOXES

LEWIS
INDUSTRIAL CONTAINERS

G. B. LEWIS COMPANY
4115 Montgomery St.
Watertown, Wis.

can take abuse!

Put this skid box to work from your receiving room to your shipping room. Handle it singly or in multiples . . . stack it ceiling high . . . load it heavy or load it light. Grab a stack with auxiliary equipment for swift movement. Built to take it! Use a Lewis Skid Box for years of service. Write for folder.

Representatives from Coast to Coast

Circle No. 89 on Reader Service Card for more information

... at Automatic Transportation Co.

The promotion of **Bernard M. Kewin** to advertising manager was announced recently



by **John A. Baldinger**, general manager. Before joining the firm in July, 1952, as assistant advertising manager, Kewin had been

B. M. Kewin associated with Cribben and Sexton Co. and Servel Inc. in advertising and sales promotion. In his new post he will direct all Automatic's advertising, public relations and sales promotion programs.

... at Goodyear Tire & Rubber Co.

J. L. Cutler has been appointed technical consultant in the Hose Sales department and **R. E. Mercer** has been named to succeed him as assistant manager of that department. The announcement was made recently by **H. D. Foster**, manager of the industrial products division.

... at Nashua Corp.

The promotion of **Carl E. Doane** to the position of assistant sales manager of the gumming division has been announced recently. He has been associated with Nashua for the past seven years and formerly was a salesman in the New England territory for the waxing division. He has been replaced in this capacity by **John D. Clark**.

... at Acme Steel Co.

John G. Bucuss, president, has announced the appointments of three new product sales managers. **Edward C. Evans**, unit load division; **C. Robert Lammers**, steelstrap division, and **John H. Prout**, stitching division. Evans joined Acme in 1925 and formerly was



Three-room aluminum house arrives on site in 6 two-man bundles —

A tribute to the packaging magic of Signode's tested steel strapping methods!

Here is another laudable example of Signode's ability to adapt *basic unitizing methods*—even to difficult-to-pack-and-protect bundles!

This three-room aluminum house—complete except for windows, doors and floors—was packaged KD for both domestic and export shipping in 6 easy-to-handle bundles!

What about your own packaging and shipping methods? Would you like to improve them to gain greater security and more economy? Perhaps the proper application of this *unit bundling method*—as recommended by Signode—will be the answer you've long sought.

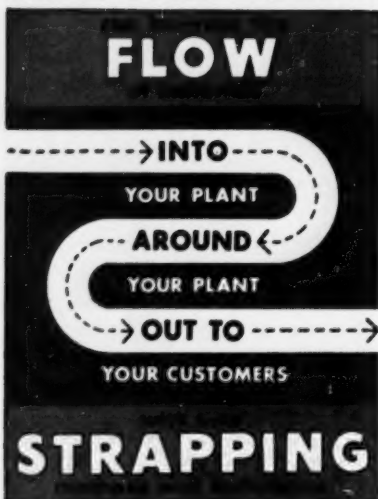
Find out now! You can ask a Signode fieldman to call without feeling obligated in any way. Write today to Signode Steel Strapping Co., 2618 N. Western Ave., Chicago 47, Ill. Offices coast to coast. In Canada: Canadian Steel Strapping Co., Ltd. Foreign subsidiaries and distributors world-wide.

SIGNODE Steel Strapping Co.

SEND FOR FOLDER SHOWING 6 BASIC WAYS OF UNITIZING
Circle No. 137 on Reader Service Card for more information

Circle No. 61 on Reader Service Card

A. J. GERRARD & COMPANY



Phone or Write Today for Full Information
SALES-SERVICE OFFICES IN PRINCIPAL CITIES

A. J. GERRARD & COMPANY

main office and factory
1960 Hawthorne Court
Melrose Park, Ill. (Chicago Suburb)

WAREHOUSES IN

NEWARK	CLEVELAND	LOS ANGELES
OAKLAND	PORTLAND	BIRMINGHAM

MEN IN THE NEWS

Continued

manager of the steel strapping department. Lammers became associated with the company in 1939 as a district sales manager. Prout has been with Acme since 1946 when the company purchased the Morrison line of stitching machines from Harris-Seybold Co. His career dates back to 1953.

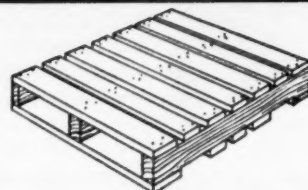
... at Mechanical Handling Systems Inc.

A. Donald Mead, former supervisor of plant layout engineering for Lincoln-Mercury, has joined the company as sales engineer, according to W. V. Casgrain, president. During his 18 years with the Ford Motor Co., Mead supervised the layout of the new Wayne plant and the assembly plants in Los Angeles, St. Louis and Metuchen, N. J.

Circle No. 64 on Reader Service Card

CARDINAL PALLETES

For Longer Service



**We Build Highest Quality
PALLETES
PALLET BOXES
DIVIDERS**

using:

Kentucky Hardwoods
Pre-drilled Boards
Steel Drive Screw Nails



HOPKINSVILLE

PALLET COMPANY, Inc.

6432 CASS AVE. • DETROIT 2, MICH.
PHONE TU 1-7474 OR TR 1-4800

**NEW!
FAST!
EASY!**



PRINT FACSIMILE LABELS DIRECT TO CONTAINERS

Here's the new system that eliminates labels and the old stencil board—ink brush method of addressing and marking shipping containers. With the new Web-O-Print JC-3 hand printer and a Kustom-Kut (die-cut) stencil, you can print both facsimile label and shipping information direct to cartons or boxes in one operation ... at the rate of 40 to 50 cases per minute!

Kustom-Kut stencils are pre-cut to print your label or form. Address and other variable information are typed in ... stencil is quickly attached to Web-O-Print ... label and address are then printed on container in a single movement.

Web-O-Printing is a fast, clean one-hand operation. Prints on rough and cylindrical surfaces. Leaves a sharp, compact, fade-proof and waterproof print. Can be easily blocked out for re-shipping.

FREE SAMPLE PRINT

Write today for a sample print and information on trial offer. No obligation.

Weber

LABEL AND MARKING SYSTEMS
Division of Weber Addressing Machine Co.
Dept. F-4, Mount Prospect, Ill.

Circle No. 155 on Reader Service Card for more information
118

**ITS FELT TIP WRITES
ON EVERYTHING!**



in **BOLD** or *fine* lines

Marking steel drums, tools, parts, pipes, etc. is smooth sailing with the Flo-master Felt-Tip Marker.

The complete range of ten colors in Flo-master Inks permits speedy and accurate identification for assembling, stocking, inspecting.

Flo-master semi-opaque inks—waterproof, non-smudging, fast-drying—are recommended for hard-to-mark surfaces using the KING SIZE Flo-master. For general purpose marking—cartons, cases, etc.—use Transparent Inks with POCKET SIZE Flo-master (illustrated).

Contact your supplier or write direct to Cushman & Denison Manufacturing Co., Dept. F-11, 153 West 23rd Street, New York 11, N. Y.

Flo-master
FELT-TIP MARKER

Circle No. 41 on Reader Service Card for more information
FLOW • NOVEMBER, 1953

... at General Box Co.

A. W. Richardson has been named treasurer of the Meridian, Miss., division of the company. Joining the firm in 1947 as an accountant, he has progressed steadily until he was in charge of all accounting. He also was office manager and credit manager. He will continue in his former duties in addition to assuming the new responsibility of treasurer.



... at Hyster Co.

The appointment of Robert Anderson to the newly created position of foundry engineer was announced by Eugene Caldwell, vice president and general manager. Since a substantial part of Hyster's production involves steel castings, grey iron and malleable castings, Anderson's new post will considerably improve quality control procedures in the plant. He has been with the company since 1950 and recently completed an extensive training period with the company's foundry suppliers.

... at Wayne Pump Co.

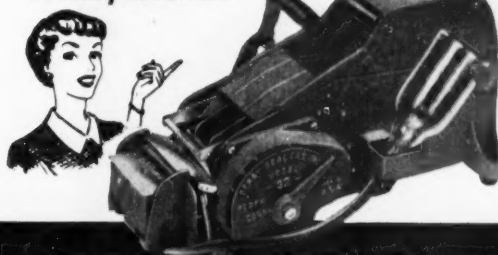
W. H. Bateman, president, has announced the appointment of Francis E. Laurent as director of sales for all divisions of the company. Laurent has been with the firm for over 20 years and in his various capacities has gained wide experience in all phases of sales and service of the Wayne lines.

... at Lempco Products Co.

James F. Strnad has stepped down from the presidency of the company after 35 years of active management. Succeeding him is his son, James J. Strnad, previously vice president and general manager. John Y. Blazek continues as executive vice president.

Circle No. 44 on Reader Service Card for more information

Easy to use ... Easy to clean
... Easy to service



DERBY SEALER

MODEL 32 GUMMED TAPE DISPENSER

For Shipping Room and Production Line Packaging

● Rugged simplicity aptly describes the Model 32. Derby's exclusive, one-piece solid casting eliminates parts and provides added rigidity. What's more, the Model 32 is easy to clean, even during the hot summer months when machines tend to "gum-up."

● The Derby Model 32 accommodates any tape from 1" to 3" wide. Delivers from 4 inches to 34 inches of tape at one stroke.

● Derby's exclusive "moisture-control" system maintains a maximum high water level in the tank to assure a constant supply of water to the brush, no matter how fast tape is dispensed.

● Also available is the Model 32-T with tool steel shear-type blades for cutting reinforced strapping tapes. Blades have two cutting edges to double their useful life before resharpening.

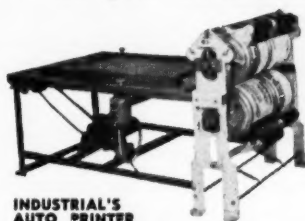
For further information, write Dept. F

DERBY SEALERS, INC.
Derby, Connecticut



PRINT YOUR OWN SHIPPING CONTAINERS OR MULTI-WALL BAGS

... as you need them



INDUSTRIAL'S AUTO PRINTER

Is suitable for imprinting information, addresses, marking, or whatever you may require on your containers or multi-wall bags. It is capable of printing as many as 2400 unit per hour. Eliminates hand stenciling. This is just one of Industrial's coding and marking machines designed specifically for your needs to assure more efficient marking and movements of materials on production lines. Marking equipment is also available for conveyor line use and for MUNITIONS marking.

Let us help you—send us your marking problem; we will do the rest.

Write for catalog today.

INDUSTRIAL MARKING EQUIPMENT CO.
Designers & Builders of Marking Equipment for Industry
DEPT. F., 454 BALTIC STREET
BROOKLYN 17, N. Y. • MAin 4-2401

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MARSH STENCILS
Deliver The Goods!



New, faster marking system simplifies shipping!

Yes, put away non-permanent tags and labels, eliminate tacking, stapling, gluing of addresses. Simply apply MARSH stenciled marking directly onto your shipments. Bold, easy-to-read 1/2", 3/4" and 1" letters. With either electric or hand operated machines it's faster, and costs you less than complicated methods. Ask us for proof today.

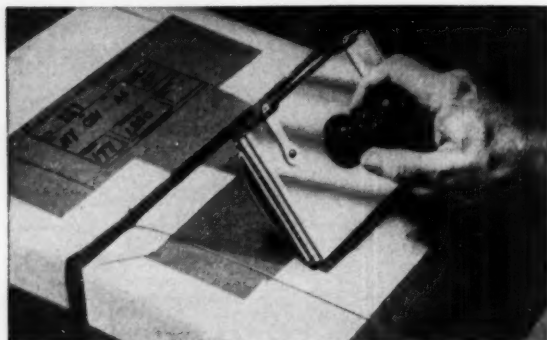
For more information or a free demonstration mail us this ad with your name and business letterhead

MARSH STENCIL MACHINE CO.
67 Marsh Bldg.
Belleville, Ill.

MARSH

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Circle No. 112 on Reader Service Card for more information



LOT LABELLING

for Storage or Shipment Made Faster . . More Accurate . . Cheaper!

Faster than pasted labels . . faster than stencil and brush. Print direct . . 1000 or more clear, sharp copies without re-inking. Prints practically anywhere . . postcards, tags, labels, boxes, cartons, packages, menus, forms, letters . . paper, cloth, wood. Just type, write, trace or draw on inexpensive stencil . . snap it on duplicator . . and print—like using a rubberstamp. New pre-cut "FORM-CUT" stencil prints shipping form and identification data in one operation.

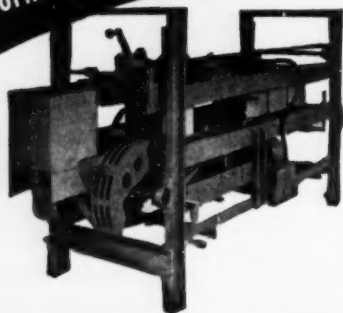
THE ORIGINAL HAND STAMP
STENCIL DUPLICATOR



OVER 30 YEARS

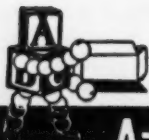
Portable . . non-mechanical . . of non-corrosive metal . . replaceable ink pads. 8 complete outfits, \$9.50 to \$99.50, including supplies (f.o.b. factory). Write for literature or see your office or shipping room supply dealer.

MULTISTAMP
STENCIL DUPLICATOR
MANUFACTURED ONLY BY THE MULTISTAMP CO., NORFOLK, VIRGINIA



THE NEW A-B-C Junior CASE SEALER

The A-B-C Junior Case Sealer automatically seals corrugated shipping containers in only a fraction of the floor space ordinarily required. Operation is fast—trouble free—economical. A completely new flight chain construction virtually eliminates carton jamming . . . Three semi-automatic models are available to fit most case sizes. Write today for details and floor plans.



A-B-C PACKAGING MACHINE CORP.
QUINCY, ILLINOIS

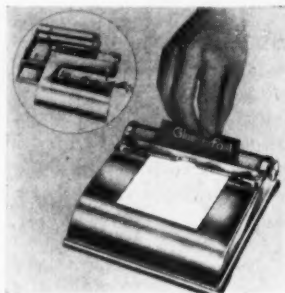
Circle No. 164 on Reader Service Card for more information
120

PACKAGING AND SHIPPING NEW EQUIPMENT . . .

(Continued from page 99)

Ungummed Label Dispenser

The Glue-Fast Equipment Co., Inc., has announced that it is now in full production on the new Model BX Label Gluer. This device is said to offer a solution to messy glue pots. A feature cited for the new device is its one hand operation. Also of importance . . . no maintenance is required; no time is lost in setting up, since only an occasional rinse is needed for the dispenser; no time is lost; no expensive gears or parts ever have to be replaced. Liquid glue is applied by two serrated brass rollers.



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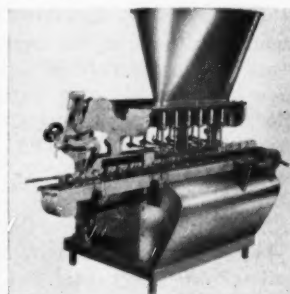
Cartoner For Long Items

A portable machine designed especially for cartoning a variety of long products such as venetian blinds, curtain rods, brushes, etc. has been announced by Container Equip. Corp. The machine is quickly adjustable without special tools for glue-sealing fibreboard or corrugated containers from 18 inches to 48 inches deep, at from 10 to 50 cartons per minute. Product insertion is manual. The machine, called Ceco Model 3901-48, folds flaps, applies glue, and seals cartons automatically.

Circle 190 on Reader Service Card for more information

Machine for Low Cost Filling

The Type 9A filling machine of Hope Machine Co. eliminates the necessity for a long machine table, and as a result is claimed to increase production speeds (up to 250 containers per minute) and reduce costs. Containers move from the in-feed conveyor directly onto the rising table of the filler. After "bottom-up" filling occurs, the containers are moved immediately onto the discharge conveyor. The machine can be used for filling glass jars, plastic bottles, tin cans and paper cups. It can be adjusted for quantities from 1/2 fluid to 32 ounces.



Circle 191 on Reader Service Card for more information

Quickly Opened Container



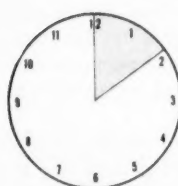
TIME savings made possible by "tear-strip" containers were demonstrated by a recent test in which several types of opening methods were compared. The test, taken at Jensen's Super Valu Supermarket, Minn., compared the opening, marking and placing of contents on shelves from the tear-stripped containers and from containers not using tear strips.

Average time savings were 13.0% in opening, 44.9% in marking; and 40.6% in moving contents from case to shelf. Total over-all saving amounted to 34.5%.

The "tear-strip" method of opening depends upon a hidden strip of pressure sensitive tape that is laminated to the interior surface of the container when it is first manufactured. For opening of a filled container, an exposed tab end of the tape is pulled and the tape cuts through the container's four sides.

Courtesy Minnesota Mining & Mfg. Co.

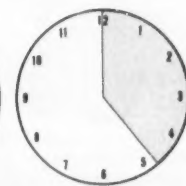
AVERAGE TIME SAVINGS PER HOUR



Opening
Container

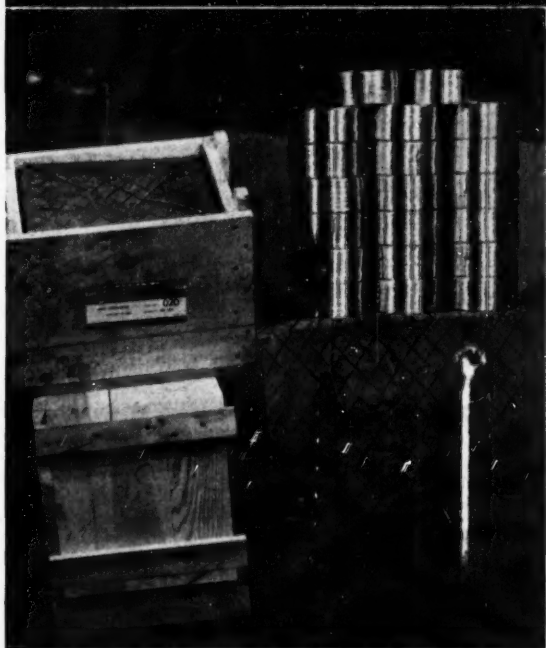


Price Marking



Placing Container
on Shelf

These wire coils *fully protected* on over-seas shipments by **MID-STATES Green Core Barrier Rap**



Easier packaging required no sealing tape...cut labor and material cost

For more than seven years, Chicago Steel and Wire Company has been using Green Core Rap in bag form. The illustration shows the 100 pounds of coiled wire which is being shipped abroad, now, with complete satisfaction. Note the wrapped unit inside the wooden box... Green Core Rap completely protects the 20 coils of wire and requires no sealing tape. The company reports this a much easier method of packaging, *considerably reducing their labor and material cost.*

Mid-States manufactures many types of Barrier Raps to meet various uses and differing specifications. Perhaps you can do a better and a quicker packaging job at less cost with these remarkable, versatile wrapping materials. Send for free samples, test data and complete information.

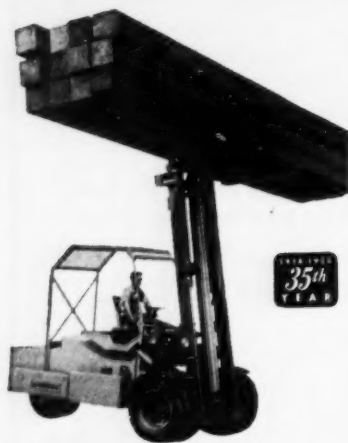
LEADERS IN THEIR LINE

MID-STATES Gummed Paper Company
2511 S. DAMEN AVE., CHICAGO 8, ILLINOIS

BRANCH OFFICES: New York • Boston • Philadelphia • Cleveland • Detroit • St. Louis • Atlanta • Los Angeles

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**THESE SILENT HOIST
WORK HORSES WILL
SAVE UP TO 75%
IN TIME AND LABOR COSTS**



**HEAVY-DUTY FORK
LIFTRUK**

5-7½-10-15 TON CAPACITIES

The heavy-duty "Silent Hoist" LIFTRUK and LIFT-O-KRANE feature fast handling of unbalanced and capacity loads, with maximum stability . . . high lifting range . . . short turns in narrow aisles create added acres to your storage space.

These SILENT HOIST features add up to faster inloading, most efficient inter-plant handling and scientific stacking, quicker out-loading to truck, trailer or car, with time and cost savings, very often up to 75%.

LIFT-O-KRANE

Combination Boom Crane and Fork Lift, with separate power winch for Lead Line.

SEND FOR BULLETIN 75 on LIFT-O-KRANE and BULLETIN 77 on LIFTRUK.



Either machine can be supplied with RAM attachment.



SILENT HOIST & CRANE CO.
Pioneers of Heavy Duty
Materials Handling Equipment

888 63rd STREET, BROOKLYN 20, N. Y.
Circle No. 138 on Reader Service Card
122

TOP MANAGEMENT . . .

(Continued from page 75)

help each level of management make the best use of its resources.

A well-engineered control system raises productivity and improves service even though you spend no money on new equipment or facilities.

W. W. Beardslee: "How Operating Management Evaluates Material Handling."

There are scientific principles and techniques for determining the material handling costs of any operation.

The first step in such an undertaking is to determine both the time and money values of the individual items and operations involved.

Also, the phases of an operation connected with the highest costs can be determined, and, based on these facts, sound judgment can be used in selecting mechanical and material handling equipment.

If this is done, the results will

inevitably be lower costs, faster cycles, and higher turnover.

There is probably no accounting department equipped to determine the amount of money an operation is spending in handling materials.

The General Electric Company had the manufacturing engineering personnel devise a method of evaluating the amount of money which an operation is actually spending on handling materials. The next step was to determine the selected areas where it was most beneficial to accomplish cost reductions through investments in material handling equipment.

The engineers then considered costs in terms of time. In determining these costs they developed "manufacturing cycle charts," showing the amount of time required actually to perform an operation and the amount of time the material remains idle between operations.

The charts point up the places where excessive time is involved, and where effort should be made to increase an inventory turnover.

We actually had cases where we

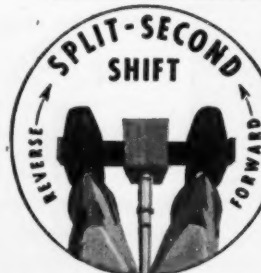
PLUG IT IN --- AND GO ---



In operations where noxious engine fumes are a health hazard, this agile electric motor operated BUTLER CARSCOOP is a practical answer. Operates on 220 or 440 volt current. (Specification bulletin 250E)



MODEL GA9E



The BUTLER (electric powered) CARSCOOP is quiet, quick, agile. Short turning radius makes it ideal for work in box cars or close quarters . . . 10 or 12 cu. ft. bucket. Exclusive Hydro-Reel automatically takes up and pays out, keeping cable in tension. Cable allows operations up to approximately 85 ft. from source of power. Gasoline models also available. Write today for complete specifications.

BUTLER BIN CO. CARSCOOP DIVISION

941 BLACKSTONE, WAUKESHA, WIS.

Also manufacturers of material bins, weighing batchers, bin gates, elevators and screw conveyors.

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FLOW • NOVEMBER, 1953

were seriously considering building a new plant to take care of an anticipated increase in business—until we made a manufacturing cycle chart analysis. After such a study it became clearly evident that, by improving certain areas of operation, we could easily handle the increased business in the existing plant facility. Usually the only expenditure necessary would be a few items of manufacturing machinery and mechanized material handling equipment, together with an improved method for scheduling and controlling the flow of materials throughout the manufacturing cycle.

The study found that one of the major causes of long manufacturing cycles results from "contributing operations". They exist in functionalized plant layouts where all screw machine work is accomplished in one building, all punch press work in another, plastic molding work in another, and so on.

The General Electric Company has been working for some time to convert these functional type layouts into "product type layouts." The results have been substantial reductions in both the time and money involved in material handling, and to reduce substantially the manufacturing cycle and thereby increase the inventory turnover.

E. C. Stephenson: "Production Unit Accounting"

Production unit accounting, adopted by retailers in the Associated Merchandising Corporation, should be considered for adoption by manufacturers.

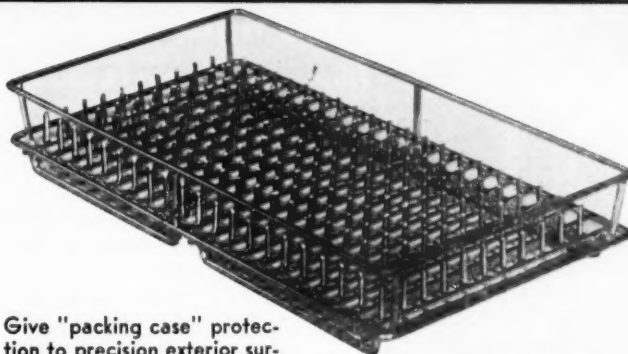
This group of retailers is working toward establishing standards of performance for each other; they are examining and adopting one another's methods in a search for less costly operating procedures.

Production unit accounting, particularly as it applies to the stores, is a method which permits determination of the total cost of each non-selling department or work center.

This gives management an opportunity to place responsibility for costs directly upon the person who has charge of the operation of the department. Furthermore,

Circle No. 79 on Reader Service Card for more information

SEGREGATE VITAL SURFACES



Give "packing case" protection to precision exterior surfaces by handling your delicate parts in a Jaxon pin rack.

Light, sturdy, welded wire Jaxon pin racks provide convenient and effective protection during processing and handling of parts in your plant.

The rack stacks for storage and transportation yet gives individual support and separation to each part.

Ideal for degreasing, inspection and handling between operations.

Spacing and number of support pins, per rack, may be varied to meet your particular requirements.

Write for complete information.

JAXON WIRE PRODUCTS

PHONE 3-4373

1705 PROBERT ROAD

JACKSON, MICH.

5 FEATURES that make load-lifting

with a **marforge** EASIER

- ① **LIFTING ACTION** requires only 30-lbs effort, while standing erect . . . no bending . . . no crouching
- ② **STEERING** made easier by double ball-bearing 5th wheel (5" dia.)
- ③ **LOWERING SPEED** controlled, protecting fragile loads
- ④ **MANEUVERABLE** wherever a man can stand — Does not block aisles when lifting
- ⑤ **PULLS EASIER** because of sealed ball-bearings in each wheel, and large diameter (10") front wheels



**1953 SKID
LOAD LIFT**

Capacities up to 10,000 pounds
Widths — 18" and 24" Lengths — 24" to 72"
For 6 1/2", 7 1/2", 9 1/2", 11 1/2" Skid Platforms
Standard Lift 3". Special Lifts to 8".

**WRITE FOR
FREE TRIAL OFFER.**

56 Years In The Materials
Handling Business

Market Forge Company
EVERETT 49 MASSACHUSETTS

Circle No. 98 on Reader Service card for more information



**ADD LIVELY
SWING-SHIFT**
(hydraulic fork control)
**VERSATILITY
TO YOUR LIFT TRUCK**

- Eliminate all non-productive maneuvering
- Turn corners in tight areas
- Stack higher—faster, safer—with precision
- Increase lift truck output, reduce operating costs, add tire clutch & motor life

UNITS AVAILABLE FROM 3,000
TO 15,000 LB. CAPACITY

See Your Lift Truck Dealer or Write

SWING-SHIFT MFG. CO.
DESIGNERS • FABRICATORS
P. O. BOX 957
LONGVIEW, WASHINGTON

TOP MANAGEMENT

Continued

the department manager is given definite knowledge of his costs so that he can give them adequate study and take remedial steps for improvement, if improvement is necessary.

Standards are prods to management to determine exactly what each department is supposed to process and produce. Knowing the cost of doing a given job and the job content, management is encouraged to further speculation to determine whether or not the things being done are essential to the welfare of the business, and to determine whether or not the work being processed is handled in the simplest and most effective manner.

Finally, they create methods to measure efficiency. By dividing the number of things processed by the number of actual productive hours, the number of units produced per productive hour can be determined. Dividing the total cost of

operating a department by the number of units produced permits the determination of the cost of each unit processed.

The members of the corporation group of stores have the benefit of comparison of costs and production unit figures.

Knowledge of comparative performance caused each store to study the following points:

1. Is the work flow through a given department efficient—are there straight line production methods with all unnecessary travel time eliminated?

2. Are department routines well planned?

3. Are rank and file employees thoroughly familiar with the routines? How much improvising are they practicing in the conduct of their work?

4. Are the rank and file employees thoroughly competent to perform their tasks?

5. Is the equipment used properly designed for the job?

6. Is supervisory personnel adequate and well-informed?

7. Does supervision board em-



Make light, safe work of lifting engines and machinery, loading and unloading trucks, raising vehicles, and many other heavy jobs.

Manzel Floor Cranes are available in one to two ton capacities. Four point suspension prevents tipping. Sturdy combination handle provides accurate steering and smooth, fast pumping. This fast, versatile, and relatively inexpensive equipment for heavy lifting and moving will quickly pay for itself. Write today for complete information.

Manzel

DIVISION OF FRONTIER INDUSTRIES, INC.
315 BARCOCK STREET, BUFFALO 10, N. Y.



DYNAPAKT* CONCRETE, a development which produces the highest compressive strengths ever achieved in concrete floor surfaces with unequalled resistance to production abuses and industrial traffics.

DYNA meaning forceful
PAKT meaning densified



For complete information write

FLASH-STONE COMPANY INC.
3723 Pulaski Avenue
Philadelphia 40, Pa.

any type of industrial floor
...installed anywhere!

ployees, or is idle time utilized in other departments?

I cannot over-emphasize the advantages accruing from a cooperative study of costs. The benefits our small group of non-competitive stores receive from a free interchange of costs and methods information are of inestimable value.

A. T. Waidehich: "The Economics of Material Handling from the Viewpoint of the Analysis and Justification of Capital Expenditures."

Capital expenditures, such as those for new buildings to improve material handling, can be justified if they will improve the return.

In this analysis, top management can be most helpful in taking the broad viewpoint, encompassing the whole problem, to avoid the error of studying only part of the problem.

The preferred approach to a material handling study for a new plant or warehouse, or extensive modernization of existing facilities, consists of three basic steps:

1. Reduce the handling.
2. For the resultant handling, consider all possible methods.
3. Select the method and plant that is most economical and practicable.

The principle behind many studies for locating new plants or re-locating existing ones is the reduction of shipping costs to a minimum by selecting a location that reduces the ton miles of movement.

It is vital that there be no hesitancy in exploring new and untried methods which may not be possible with existing equipment.

Consideration must be given to the two phases of material handling: Movement and storage.

Should movement from one point to another include storage for work in process? Is there a more economical and satisfactory method of storage, and how will it affect the choice of handling methods?"

In selecting the method and plan which is most economical and practicable, records of material handling costs should be adequate. Items of building costs should be included, and new facilities which include other benefits besides those of material handling should be considered.

Circle No. 159 on Reader Service Card for more information

NEW WRIGHT-HIBBARD Hydraulic High Lift Platform Trucks

NEW DESIGN! NEW PERFORMANCE! GREATER WORK CAPACITY!

These Wright-Hibbard trucks have been mechanically redesigned to transport and tier skids and skid boxes more rapidly and at lower cost. One of their important new features is the hydraulic lift, operated by a separate motor, which permits the operator to raise or lower his load while the truck is in motion. Result is faster, smoother, quieter and more economical handling of more loads per day. Capacities 2000 to 4000 lbs. Platform sizes to suit any need. Write for bulletin giving general specifications and engineering data.



Model TRC-6
WRIGHT-HIBBARD
High Lift Platform Truck

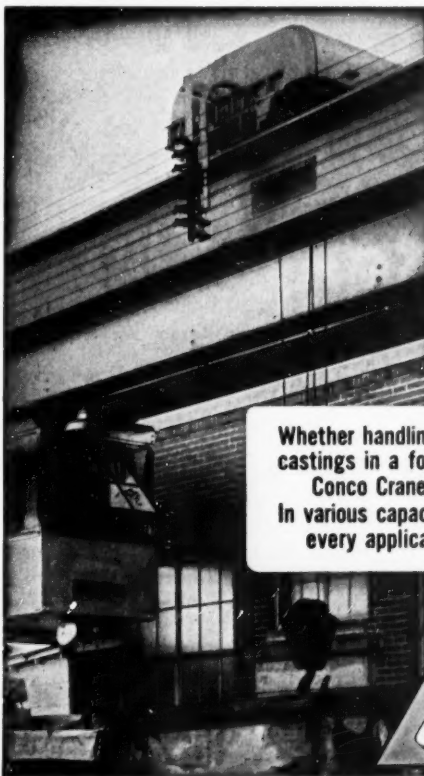
Precision-Built Industrial
Electric Trucks Since 1917

W H

Low Lift Platform Trucks
High Lift Platform Trucks

Fork Lift Trucks
Burden Carrying Trucks

WRIGHT-HIBBARD INDUSTRIAL ELECTRIC TRUCK COMPANY, PHELPS, N. Y.



*First
for
Performance*

Whether handling steel in the yard, castings in a foundry, or servicing a machine shop, Conco Cranes rate first for performance. In various capacities and spans, a type for every application. Write for details.

CRANES HOISTS

CONCO

CONCO ENGINEERING WORKS

Division of H. D. Conkey & Co., 38 Grove St., Mendota, Ill.

Circle No. 38 on Reader Service Card for more information

What's

NEW in useful FREE literature

The publications featured on these pages were written by experts. They are FREE publications. To obtain them use the postcard bound into this issue.

Operator Training:

The fifth edition of "How To Operate a Lift Truck" has been published by Hyster Company and is again available to lift truck operators, supervisors, safety engineers and other industrial and governmental personnel. The booklet will prove helpful to both the beginner and the experienced operator.

Circle 226 on Reader Service Card

Spanish Battery Guide:

Suggestions on the selection, maintenance and operation of storage batteries for industrial trucks and tractors have been issued in Spanish in a handy 1-page sheet with six helpful tables by Gould-National Batteries, Inc.

Circle 227 on Reader Service Card

Lift Truck Scale:

Literature from Martin-Decker Corp. describes the Martin-Decker lift truck scale which may be fitted to any hydraulic cylinder type lift truck. It shows the driver the exact weight picked up, and is said to be particularly advantageous where loads of varying weights are handled.

Circle 228 on Reader Service Card

Quality Control:

Bulletin No. 0252 from Richardson Scale Company describes the company's equipment for automatic weighing, bagging and proportioning. The 32-page booklet is amply illustrated and includes a number of on-the-job descriptions.

Circle 229 on Reader Service Card

Electronic Weighing:

The economy and versatility of Baldwin SR-4 electronic weighing systems are briefly described in a booklet entitled "The SR-4 in Industry", available from Baldwin-Lima-Hamilton Corp., Testing Equipment Dept. These systems operate entirely without moving parts, and are said to be ideal for the remote indication-recording, controlling and printing of weights.

Circle 230 on Reader Service Card

Effective Electric Power:

The effective application of electric power to iron ore beneficiation projects is covered in a 20-page booklet from Westinghouse Electric Corp. Each step in mining and processing the ore from pit operations through transportation, milling and concentrating, townsite planning and power generating and distribution is covered in the booklet. The booklet is designated B-5858.

Circle 231 on Reader Service Card

Work-Level Dispensers:

American Machine & Foundry Company, Lowerator Sales Dept., offers literature describing the AMF Lowerator dispenser for automatically keeping materials at ideal work level. The unit's spring mechanism automatically compensates for increased or reduced weight.

Circle 232 on Reader Service Card

Centralized Lubrication:

Bulletin No. 26 from The Farval Corporation describes Farval cen-

tralized lubrication equipment. The 20-page booklet is well illustrated, and the manner of presentation makes it possible to see quickly which system is best suited for a particular need.

Circle 233 on Reader Service Card

New Handling Methods:

New methods which are said to reduce operating costs in handling bulk and packaged materials are described in a 12-page brochure offered by the Tractor Division of Allis-Chalmers Manufacturing Company. Illustrating the brochure are action shots of crawler and industrial wheel tractors, motor graders, and power units, plus detail views of the rubber-tired earth moving equipment recently added to the Allis-Chalmers line.

Circle 234 on Reader Service Card

Utility Cart:

Literature from Parker Sweeper Company describes the company's utility cart which is made of a canvas basket on a tubular steel frame. The canvas basket can be removed, and the frame, when folded, may be used as a utility hand truck.

Circle 235 on Reader Service Card

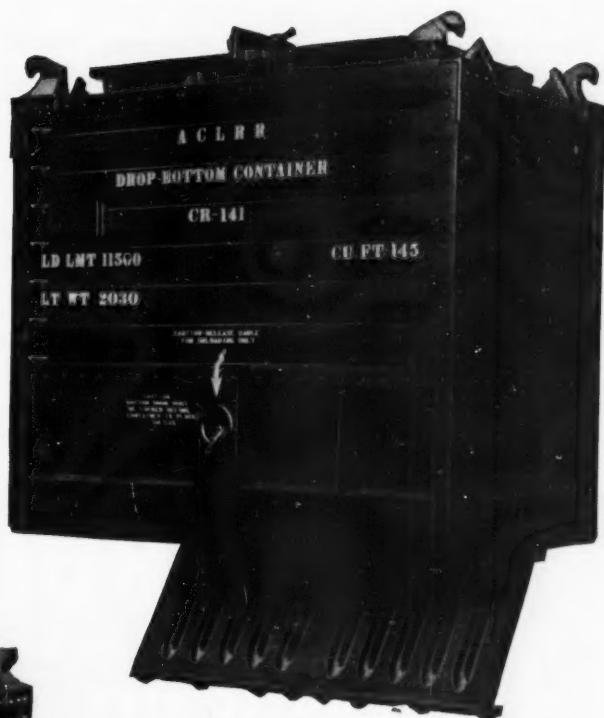
Partitional Pallet:

Literature from Hamerslag Equipment Company tells the story of a new use for the HECO partitioned pallet and spacer in stacking fragile insulating bricks. The unit is said to be an ideal storage facility where loss from weight compression is involved.

Circle 236 on Reader Service Card

Check!

- ✓ Complete Discharge of Material
- ✓ Easily Operated
- ✓ Greater Speed
- ✓ Savings in Man-Hours
- ✓ Greater Efficiency
- ✓ Rugged
- ✓ Variable Size



Quick And Complete Discharge Bulk Materials Container



Controlled Discharge Bulk Materials Container

- ✓ Positive Manual Control of Discharge of Material
- ✓ Easily Operated Geared Rotary Valve
- ✓ Gears Completely Protected
- ✓ Greater Efficiency
- ✓ Rugged
- ✓ Variable Size

Consult with us for improved handling of your bulk materials

THE YOUNGSTOWN STEEL DOOR CO.



CAMEL SALES CO. CAMEL COMPANY LIMITED

Cleveland • Chicago • New York • Youngstown

Circle No. 161 on Reader Service Card for more information

Standard Equipment:

Stephens-Adamson Mfg. Co., which recently formed a S-A Standard Products Division, offers Bulletin 653 which contains a complete listing of the units available from this department. Items included are: centrifugal loaders, car pullers, bin level controls, hoists and winches, speed reducers, conveyor belt cleaners, holdbacks and carriers.

Circle 237 on Reader Service Card

Clamping Attachment:

The Atlas Clamp, a hydraulic clamping attachment for handling bags, bales, barrels, boxes, crates, cartons, drums, tires, etc., without pallets, is described in a circular available from Lewis-Shepard Products, Inc. It handles loads up to 3500 pounds and all controls are from the operator's cab position in the Lewis-Shepard Space-Master electric fork truck line.

Circle 238 on Reader Service Card

Coil Handler:

Literature from Dixon Automatic Tool Inc. describes the Dixon 15,000-pound coil handler, which was designed to pick up, turn, transport and stack large heavy coils. It lifts and turns coils up to 43 inches wide.

Circle 239 on Reader Service Card

Speed Reducers:

Design and cost-cutting values of double-enveloping worm gear sets and speed reducers in all types of food and chemical processing equipment are described and illustrated in a 4-page, two-color brochure available from Cone-Drive Gears, Division Michigan Tool Company.

Circle 240 on Reader Service Card

Unusual Chain Hoist:

The Pul-Lift, an unusual chain hoist design which either hoists or pulls, is illustrated and described in Bulletins P-260B and P-1260 of the Yale Materials Handling Division, The Yale & Towne Manufacturing Company. It operates in close quarters by means of short strokes on a ratchet handle and is ideal for riggers' equipment. It is available in $\frac{3}{4}$ to 15 ton capacities.

Circle 241 on Reader Service Card

Steel Handling Products:

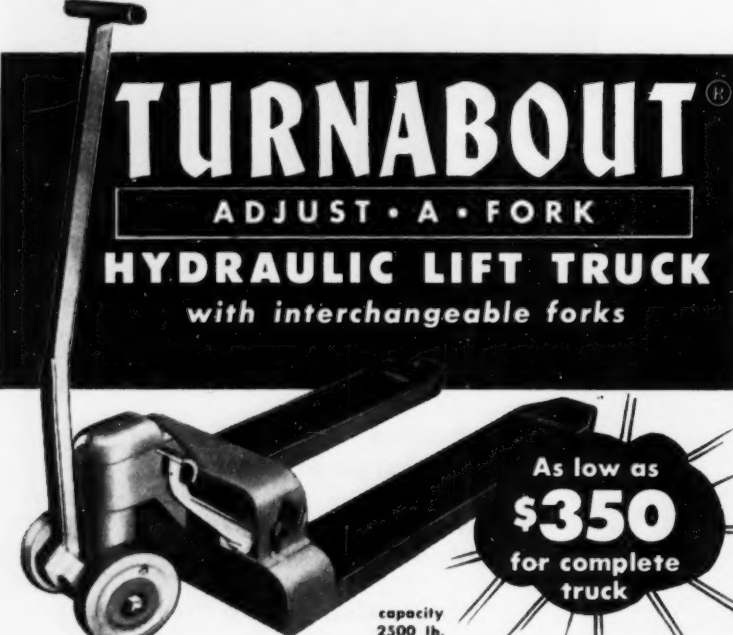
The complete line of all-steel material handling products manufactured by Elizabeth Iron Works, Inc., is illustrated and described in a 6-page, two-color folder. Complete specifications for all products are included.

Circle 242 on Reader Service Card

Wheeled Equipment:

Lansing Company offers a catalog on its wheeled equipment, including hand trucks, wheels, platform trucks and wheelbarrows. Photos, complete descriptions of the various models and specifications are included.

Circle 243 on Reader Service Card



TURNABOUT[®]
ADJUST • A • FORK
HYDRAULIC LIFT TRUCK
with interchangeable forks

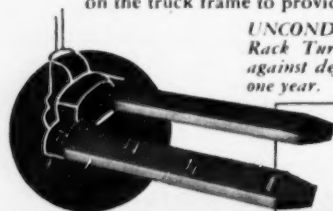
As low as
\$350
for complete truck

capacity
2500 lb.

At last, improved design and mass production techniques give you a quality product, properly priced. The Turnabout will immediately prove its superior performance with extra strength where needed most . . . high maneuverability . . . ease of operation. Resinoid type casters and aluminum leader wheels at no extra cost.

INTERCHANGEABLE FORKS: Easily interchangeable forks are available in five standard lengths. They may also be adjusted on the truck frame to provide 25" or 27" width.

UNCONDITIONALLY GUARANTEED: The Rack Turnabout is unconditionally guaranteed against defects in workmanship or materials for one year.



TRUCK COMPLETE

- With either 30", 36", 40", 42", or 48" forks **\$350**
- With either 54" or 60" forks **\$390**

RACK HYDRAULIC EQUIPMENT CORPORATION

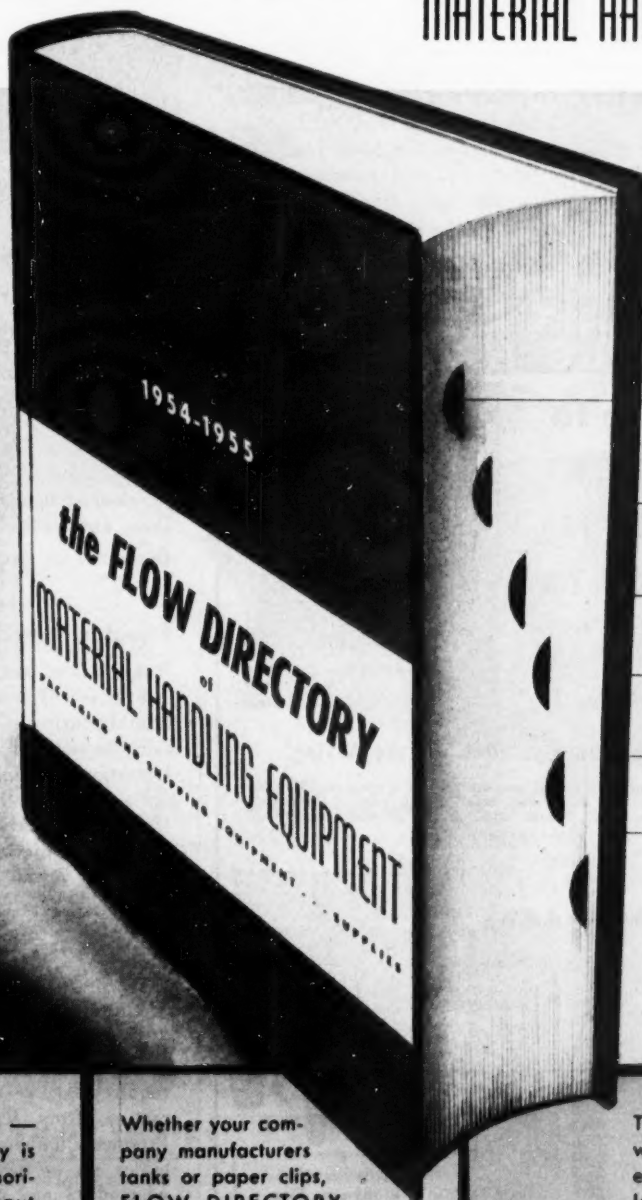
CONNELLSVILLE, PENNSYLVANIA

AGENTS IN PRINCIPAL CITIES UNITED STATES, CANADA, EUROPE

Circle No. 120 on Reader Service Card for more information

READY SOON!

THE ALL NEW 1954-1955 **FLOW DIRECTORY** of MATERIAL HANDLING EQUIPMENT



NEW TAB INDEX

ENGINEERING AND TECHNICAL DATA

WHO SELLS OR RENTS EQUIPMENT

MANUFACTURERS' CATALOGS

TRADE MARK INDEX

PRODUCT CLASSIFICATION

Right Up To The Minute —
The new FLOW Directory is your own library of authoritative information about material handling equipment and accessories.

Whether your company manufacturers tanks or paper clips, **FLOW DIRECTORY** listings will lead you to purchase the "right" equipment to do your job.

Thorough Product Classification tells you who makes every known piece of M. H. equipment as well as who sells it . . . Identifies it by Trade Mark . . . Provides complete engineering and technical data with hundreds of charts and graphs . . . Includes manufacturers' catalogs showing all types of equipment for every handling task.

ORDER YOUR COPY OF FLOW DIRECTORY NOW!

The new, up-to-date edition will be mailed to subscribers as soon as it comes off the press. So, make your copy reservation now . . . all orders received up to press time will earn the special pre-publication price of only \$5.00. After publication, the price will be \$6.50. Sales in Ohio require additional 3% sales tax.

Please rush me () copy-ies of the **FLOW DIRECTORY** as soon as they're off the press.

Name Title

Company

Address

FLOW DIRECTORY

1240 Ontario St. • Cleveland 13, Ohio

Belt Conveyors:

A catalog showing its entire range of standardized belt conveyors has been issued by Barber-Greene Company. Each standardized component and accessory is illustrated and described with drawings showing the relationship of the unit to the entire conveyor. In addition, the range of application of each unit is tabulated for quick reference.

Circle 244 on Reader Service Card

Exhaust Purifier:

The OCM catalytic exhaust, a device for removing carbon monoxide, fumes and odors from all types of gasoline-powered equipment, is illustrated and described in a 4-page folder published by Oxy-Catalyst. The booklet tells how, by chemically burning out harmful, unconsumed gases, the catalytic exhaust reduces carbon monoxide to a safe level.

Circle 245 on Reader Service Card

For Truck Users:

"Mr. Smith To see You, Sir" is a brochure made available by Towmotor Corporation. In the brochure, Mr. Smith, who is president of Towmotor, discusses the contribution material handling has made to industrial development, and points out the advantages of Towmotor trucks and tractors.

Circle 246 on Reader Service Card

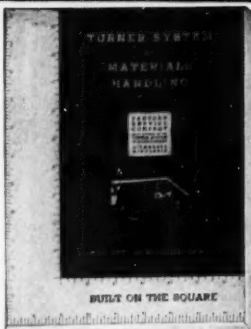
THE TURNER SYSTEM OF MATERIALS HANDLING

**Now Is the Time to
CRACK
DOWN
on COSTS!**



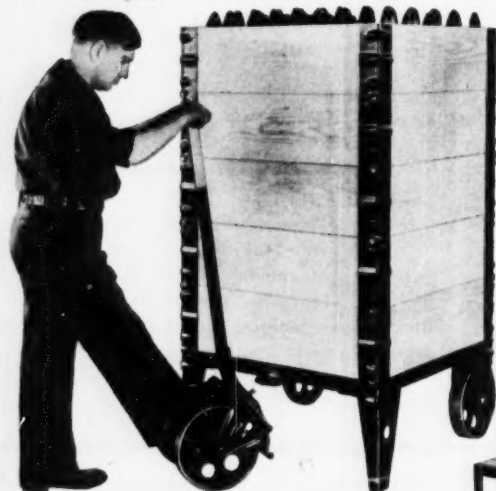
Stacked Transports
save floor space.

Don't wait until high production costs eat the heart out of profits. Find out now how many leading firms have cut labor, floor space and equipment costs up to 50% in material handling.

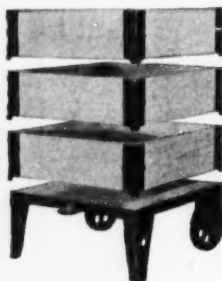


This New Book Is FREE for the Asking

Just off the press and full of cost-cutting ideas, the new TURNER SYSTEM Book can show you how to cut material handling costs in a big way. Please write for it on your letterhead.



You cut costs when you "DELIVER THE BIN AND SAVE THE HANDLING." Bin Sections, Pallets, Die Racks, Shop Box Racks and other units fit on the Turner Transport—always ready to roll.



**Always the
Right-size Bins**

Wooden-side or All-steel Bin Sections are added as load increases, removed as load diminishes. No time wasted "diving" to bottom of over-size bin.



Send for Your
Turner System
Book Today!

Rugged
Turner Pal-
lets are built
to last.

FACTORY SERVICE COMPANY
4607 N. TWENTY-FIRST STREET MILWAUKEE 9, WISCONSIN

Circle No. 52 on Reader Service Card for more information

Magnesium Plate:

"Magnesium Plate and Sheet To Reduce Weight" is a folder available from Brooks and Perkins, Inc. In addition to describing dimensions, tolerances, etc., of the different grades of products, it includes a page comparing the gauges required for equal stiffness in sheet magnesium, aluminum, brass and steel.

Circle 247 on Reader Service Card

Framing Material:

A catalog issued by the Multi-A-Frame Division of Ainsworth Manufacturing Corporation contains installation photographs, illustrations and information on the various types and sizes of channel frame and fittings, engineering data charts, how and where to buy and other useful material.

Circle 248 on Reader Service Card

Parts Container:

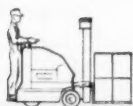
The Rantote "877", which is said to combine every handling requirement, is described in literature from Randolph Metal Products Company. This parts container can be nested, stacked and adapted to any conveyor system.

Circle 249 on Reader Service Card

Truck Parts Catalog:

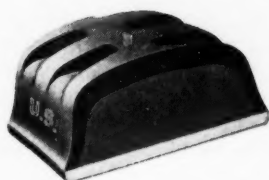
Lift Parts Mfg. Co. Inc., which manufactures and stocks replacement parts for lift trucks, offers its 1954 catalog. Listing more than 5000 replacement items, it includes such items as axle shafts, gears, hydraulic hose, engine parts, clutches, tires, etc.

Circle 250 on Reader Service Card



U.S. ROYAL

INNACUSH —The superior soft-riding solid



COMPARE-IT SAVES!

OUTSIDE—rugged chip-resistant compound. **INSIDE**—soft, fully cured, shock-dampening inner-tread. This exclusive dual construction means big money-savings to you. Know why—see the comparison proof!

COMPARE-SOFTER RIDE!

CONVENTIONAL SOLID. Note wobbly axle course—actual pattern traced on film by light on truck's axle. See how floor irregularities jolt truck, jar load, fatigue driver.



INNACUSH. Same truck, same trip—but what a difference! Vibration's eliminated—floor's "planed off"—bumps soaked up. Vehicle, load, driver roll smoother, safer!



COMPARE- GREATER TRACTION!

See the tread-print proof



**CONVENTIONAL
SOLID**



**INNACUSH
TIRE**

48% more tread contact with Innacush! More grip-power increases load-safety on slick surfaces, over obstacles, up and down inclines.

COMPARE- LONGER WEAR!

White areas show amount of wear



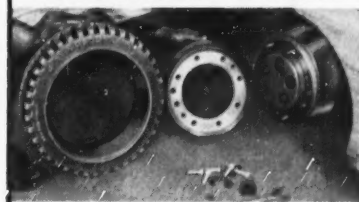
**CONVENTIONAL
SOLID**



**INNACUSH
TIRE**

50% more rubber in Innacush—lengthened life! See above tires after equal service. Conventional—ready for replacement. Innacush—many miles left!

Now! DEMOUNTABLE INNACUSH



Change it in 10 minutes. Banish "pressing" charges, cut costly "down-time".

Want full proof? Write: Industrial Tire Department

UNITED STATES RUBBER COMPANY

1230 Avenue of the Americas, New York, N. Y.

Enclosed Conductors:

The Insul-8-Bar System of enclosed conductors for cranes and monorails is described in a 4-page brochure from Insul-8-Corporation. It is said to combine a low-cost wiring system with mechanical simplicity and safety. The manufacturer states that it is comparable in cost to a bare bar system, and meets all operating requirements without special engineering.

Circle 251 on Reader Service Card

Flooring Problems:

A 20-page booklet describing the importance of good floors is announced by The Monroe Company, Inc. The illustrated brochure explains the difference between floor requirements for various industries, and lists Monroe floor resurfacing and repair products. It also contains a sample of a floor analysis form to assist maintenance superintendents in determining their floor requirements.

Circle 252 on Reader Service Card

Property Protection:

"Here's Low-Cost Protection for Plant Property" is a folder available from Armco Drainage & Metal Products, Inc. It shows, in pictures and words, how Flex-Beam Guardrail protects hazard spots in industrial plants. A dimensional drawing illustrates how the guardrail is assembled.

Circle 253 on Reader Service Card

Floor Truck Catalog:

Booklet 53-S from Nutting Truck and Caster Company is a pocket-size catalog on the Nutting line of floor trucks. Specifications and descriptions of 32 different types of trucks, available in numerous standard sizes, are listed. Product data and how-to-use-it information are included.

Circle 254 on Reader Service Card

Concrete Silos:

The current issue of the "Pre-caster" from The Marietta Concrete Corp. features several articles covering some of the more outstanding applications of the company's concrete silos.

Circle 255 on Reader Service Card

Woven Wire Belts:

Literature from The Cambridge Wire Cloth Company, designated as Bulletin No. 107, briefly describes a few of the possible applications for the company's woven wire conveyor belts. Some of the various types are illustrated, as well as special accessories for handling unusual products.

Circle 256 on Reader Service Card

Tractor-Shovel:

The Hough "Payloador" tractor-shovel is detailed in a 16-page catalog from The Frank C. Hough Co. Profusely illustrated, it contains action views of this 1-cubic-yard machine doing earth and material handling jobs for cities, counties, states, contractors, aggregate producers and industrial plants.

Circle 257 on Reader Service Card



DESIGNED FOR *Your* USE

LANSING

2 WHEEL HAND TRUCKS IN OVER 50 MODELS AND STYLES FOR EVERY NEED!

WAREHOUSE TRUCKS

The Lansing Western Eagle Warehouse Truck illustrated is typical of the sturdy, practical design inherent in Lansing Company hand trucks. Warehouse trucks are available in many models in both Western and New York patterns.



BAG TRUCKS

Time-tested construction plus modern designing make Lansing hand trucks a safe, economical investment. The Minneapolis Bag Truck illustrated is one of a complete line of bag trucks that fill every handling requirement.



UTILITY TRUCKS

For all-round parcel, package and keg handling, sturdy, light-weight Lansing Utility Trucks are unsurpassed. Economy has been retained without losing convenience and ruggedness.



SPECIAL PURPOSE TRUCKS

Many products or materials require a special design for efficient handling. If you have this problem, there is a good chance a stock model Lansing Special Purpose Truck will solve it. The Lanco Chisel illustrated is widely used for castings and machinery parts.




BARREL TRUCKS


The Lansing Western Pattern Barrel Truck illustrated is ideal for barrels and yet suitable for boxes and general merchandise. All Lansing trucks are available in a choice of wheel types to suit your needs.



SEE YOUR MATERIALS HANDLING DISTRIBUTOR OR WRITE FOR CATALOG



LANSING CO. LANSING, MICHIGAN



HAND TRUCKS PLATFORM TRUCKS TRAILERS LIFT JACK SYSTEMS BARROWS

Circle No. 84 on Reader Service Card for more information

Logging Catalog:

A heavy-equipment catalog is available from Hyster Company. Featuring Caterpillar-Hyster "packaged" equipment for more efficient utilization of machinery on specific jobs, the catalog illustrates the use of logging, loading and road building equipment with on-the-scene operations in different parts of the world.

Circle 258 on Reader Service Card

Crane Truck:

An electric-powered, two-wheel drive crane truck is detailed in a two-color folder issued by Elwell-Parker Electric Company. Application photos show how the truck handles various loads, and detailed specifications are given in engineering drawings.

Circle 259 on Reader Service Card

Vibrating Screen:

A booklet which describes the Style J Vibrex vibrating screen is available from Hewitt-Robins, Inc. The screen is especially recommended for use in small quarries, roadside contractor's plants, cinder block plants, retail coal yards and for building construction jobs and foundry clean-up work.

Circle 260 on Reader Service Card

Semi-Live Skid Truck:

Bulletin 718-X, which describes a rider type, narrow aisle, electric powered truck for handling semi-live skids, is available from The Raymond Corporation. The bulletin is complete with installation photos, specifications, and dimensions and tells how semi-live skids may be handled by rider trucks in narrow hand truck aisles and congested areas.

Write 261 on Reader Service Card

Small-Motor Service:

A 4-page, two-color bulletin describing the new GE motor service plan for fractional and integral hp motors and generators has been made available by General Electric Company.

Write 262 on Reader Service Card



R. Frank Weber

R. Frank Weber Retires

R. Frank Weber, general supervisor of material handling and packaging at International Harvester Company, has announced his retirement. Mr. Weber, one of the "deans" of material handling, plans a continuing industry relationship in an advisory capacity on matters of handling and packaging. He also will be associated with the research and development board of the U. S. Department of Defense in Washington. His retirement closes a 44-year association with International Harvester.

- TO Cincinnati's Union Terminal come travelers . . visitors . . conventioners— seeking pleasure, knowledge, products for which Cincinnati is famous: valves, machine tools, television sets, soap, A-F Engineered Conveying Systems.

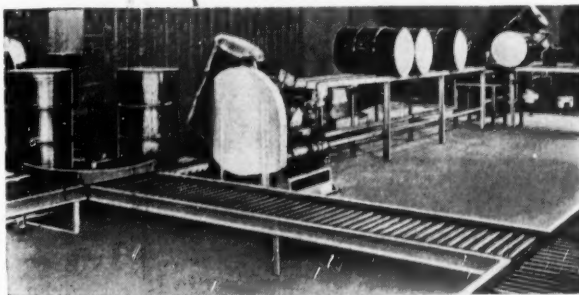
cincinnati

home of

ALVEY-FERGUSON

the original Since 1901

engineered conveying systems



Like giant fingers, this A-F "Down-ender" receives heavy oil drums in an upright position on the A-F Live Roller Conveyor shown at left, quickly tilts the drums on their sides, and elevates them to the A-F Track shown at right. Could your plant use such an installation?

For a discussion of latest efficient methods of handling products and materials write:



THE ALVEY-FERGUSON COMPANY

430 Disney Street, CINCINNATI 9, OHIO • OFFICES OR REPRESENTATIVES IN PRINCIPAL CITIES

Circle No. 6 on Reader Service Card for more information

SALES FIELD . . .

(Continued from page 26)

Eugene S. Goebel, national sales and service manager for **Motorola Communications and Electronics Inc.**, recently announced the appointment of **Frank W. Walker** as regional sales manager in southern California, Arizona and southeastern Nevada. His office will be in Los Angeles.

Two distributors for **Automatic Transportation Co.** have added salesmen recently. **Emory N. Mumma** has joined **W. W. MacCallum & Associates** in Philadelphia, while **Calvin J. Timmins** has joined the sales force of **J. Alex Gordon & Co.** in Detroit.

H. C. Hilbert has been transferred to the Chicago office of the **Nashua Corp.** He will han-

dle sales of gummed paper products following the recent resignation of **R. L. Newcomb**. Hilbert has been with **Nashua** since 1935 and has wide experience in the gummed products field.

Charles Wm. Doepke Mfg. Co. has appointed the **Modern Equipment Co.** in Salt Lake City as exclusive representative for the Nestier small parts material handling system in the Salt Lake City area. **Robert R. Ingebretsen** is president of the Utah firm.

George E. Shepherd has been appointed northern New Jersey sales representative for the **General Electric Co.** Silicone products department, according to an announcement by **Robert J. Baumann**, department sales manager. His offices will be at 570 Lexington Ave., New York. He first joined General Electric as a silicone chemist in 1950.

John Marshal, who is well known in Portland, Ore., and surrounding areas, will represent the **Flexible Steel Lacing Co.** in that northwest corner of the country.

The **Big River Equipment Co. Inc.** has been named franchised distributor for the **Parker Sweeper Co.** in the Davenport, Iowa, area. **W. H. O'Connell** is Big River's president. The announcement was made by Parker's vice president, **F. R. Moore**.

The appointment of **Fred F. Welch** as general manager of the **Hyster Co.** retail store in San Francisco has been announced by **Ray Ronald**, western sales manager. At the same time **Robert Golden** was named sales manager for the branch.

NOW! 4 MORE WAYS TO

Cut

DELIVERY COSTS

Does All Operations — OPEN, CLOSE — LIFT, LOWER with only ONE CYLINDER

A powerful freight elevator on the back of your truck that lifts or lowers *Any* kind of load *Faster* in perfect safety to operator and merchandise. Now Anthony Lift Gates do *All* operations faster by eliminating extra time-consuming operations. Uses only **ONE** cylinder and **ONE** control lever.

New Brochure shows **HOW** — you can cut your trucking costs up to 50%. Send for your copy today — no obligation.

ANTHONY COMPANY
STREATOR, ILL. • DEPT. 15E

Patd. & Pats. Pend.
U.S. and Foreign



STOP
MERCHANDISE
DAMAGE

SPEED UP
LOADING

UNLOAD
FASTER

CUT STANDING
TIME

ANTHONY THE WAY TO MAKE TIME PAY



LIFT® GATES

Circle No. 9 on Reader Service Card for more information

Elmer W. Rasmussen has been named Florida representative for the **Feedrail Corp.** succeeding **F. C. Picker**, who retired because of ill health. Offices will be in Clearwater and Rasmussen will handle the company's line of industrial trolley busway electrification systems.

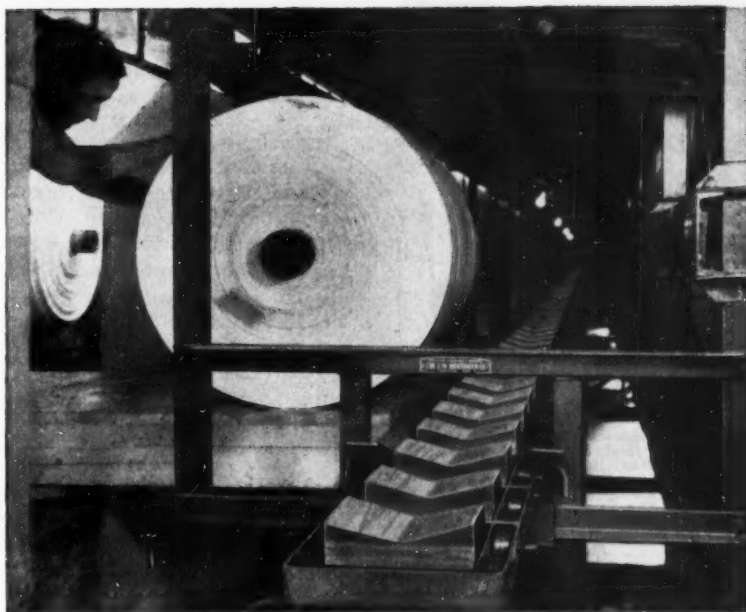
G. F. Goetsch, Buffalo district manager of the **Sterling Wheelbarrow Co.**, announced the opening of new quarters at 1660 Kenmore Ave. in Buffalo on Oct. 1.

John W. Cannon has joined the sales force of the **John J. Connell Co.**, St. Louis distributor for **Automatic Transportation Co.** He formerly had been associated with the **Burke Electric Co.** and **Electric Wheel Co.**

Jack Watson, formerly sales manager for the Trailer division of **Pressed Steel Car Co.**, has joined **Baldwin-Lima-Hamilton Corp.**, Construction Equipment Division, as sales representative covering northern Illinois and lower Michigan. He will represent **Lima shovels**, **cranes**, **draglines** and **pull shovels**.

Headquarters of the **Frank L. Young Co.**, Omaha franchise representative for **Automatic Transportation Co.**, have been moved to 1723 Leavenworth St. in Omaha.

Scott Paper Co. has formed a new retail sales division on the West Coast with headquarters in San Francisco, according to an announcement by **Paul Brown**, national retail sales manager. **H. E. Fitch**, previously sales manager of the Los Angeles territory, has been placed in charge of the division.



Individual dollies with wooden v-blocks are driven by single strand chain, carrying 400 lb. rolls of white cloth from bleaching to printing operations in different buildings.

BUSCHMAN CONVEYORS deliver the goods between buildings for Southern Bleachery

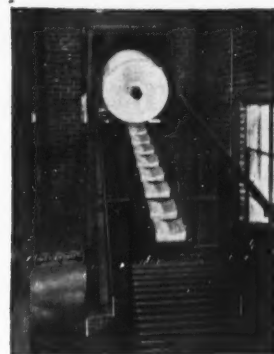
Replacing costly trucking, this Buschman Conveyor provides a steady flow of bulky cloth rolls between buildings at the Southern Bleachery and Print Works, Inc., Taylors, S.C. The design and trouble-free operation of the conveyor prove the skill and experience of Buschman Engineers in economical solution of widely varied handling problems.

Put your handling problem up to an experienced organization for satisfactory solution. Write today for literature showing "standard" and "engineered" conveyors and machinery for all industries.

Representatives in
Principal Cities



Unique Buschman Engineered design permits both changes in vertical elevation and horizontal direction, unusual in a continuous pallet type conveyor.



THE E. W. BUSCHMAN COMPANY

4450 Clifton Ave., Cincinnati 32, Ohio

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RED-E
No-Tip

DUMP TRAILERS

EASIER, FASTER,
SAFER HAULING!



No Tip-Overs—
Weight is Balanced
at Axles—
Not Above Them!

For both in-plant and yard work, move dirt, sand, trash, shavings, scrap, etc. the SAFE way... with Red-E Trailers. Specially designed for super-stability, simplest operation over any terrain. 1 1/2 ton capacity, with 104" overall length, 41"-50" width hub-to-hub, 84" wheelbase. 4-wheel or 8-wheel models available, with pneumatic or zero-pressure tires. (Also with heavy-duty stake body.) Easy, safe 5th-wheel steering for sharpest turns; Fulton trailer hitches for 3-5 unit trains. Rugged, practical, safe—Red-E No-Tip Dump Trailers are engineered for all-around work. Adjusts to 14, 18, 24 or 32-inch height for easy loading!

WRITE FOR FREE LITERATURE
RED-E TRACTOR CO.
RICHFIELD, WIS.


SALES FIELD

Continued


Russell J. Dickson has been appointed general sales manager for the Leschen Wire Rope Division of the H. K. Porter Co. Inc., it was announced by D. W. Vernon, vice president and general manager. He has been the division's Chicago district manager for the past three years.

New York Belting and Packing Co. announces three changes in its sales organization. William I. Butler has been transferred from Memphis to Cleveland as district manager. Butler's former post has been filled by William W. Conrad, who will make his headquarters in Atlanta. Malcolm Roach has been named assistant manager in the southwestern territory with headquarters in Dallas.

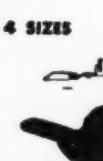
MERRILL
MATERIALS HANDLING
DEVICES

LIFTING CLAMP TWIN LIFTER

HAND GRIP DRUM TILTER




DRAG CLAMP DRUM OPENER

MERRILL BROTHERS
56-35 ARNOLD AVENUE
MASPETH, N. Y.

FOR NO DROP...NO SPILL LOAD DELIVERY



CHRISTENSEN'S 4-WAY
Hydraulic Loading Ramp

The finest of all loading ramps, featuring 4-way movement, UP, DOWN, IN & OUT. Two standard models of this self-contained unit are manufactured, one 6' wide x 6' long, the other 6' wide x 8' long. Both are rated up to 20,000 lbs. Finger tip control instantly positions the unit in any position required.

Write Today for Details of the Complete Line of Loading Ramps

Wm. Christensen Co., Inc.
DEPT. 1-51 • YORK, PENNSYLVANIA



TRUCKS AND TRAILERS MOVE FASTER, EASIER ON NEW WHEELS BY

ELECTRIC

Modernize baggage-trucks, industrial trailers, floor trucks, mail carts and other portable equipment with new ELECTRIC wheels for faster, easier handling. There is an ELECTRIC wheel for every job.

Our 65 years of engineering "know-how" assures you of top performance from ELECTRIC equipment.

ELECTRIC wheels are furnished with or without roller bearings to fit your own axles or complete with axles—steel tires, molded-on-tires, or pneumatic tires. All types are available in a full range of sizes.

Our experienced engineers are always at your service.

WRITE FOR COMPLETE INFORMATION
ELECTRIC WHEEL CO.
2821 SPRUCE • QUINCY, ILLINOIS

A new warehouse and sales office has been established by Quaker Rubber Corp., Division of H. K. Porter Inc., according to G. A. Dauphinais, vice president and general manager. Morgan Kather is in charge of the new office and supply warehouse.

Hydreco, a division of the New York Air Brake Co., has appointed 24 hydraulic equipment distributors in the U. S. and one in Canada. Borje Rosæen, Hydreco sales manager, states the distributors will handle the company's complete line of industrial pumps, motors and valves.

Lincoln-Schlueter Floor Machinery Co. has appointed the Hadco Corp. of Cleveland as its representative throughout the state of Ohio. Both electric and gasoline-powered models of floor cleaning machines will be handled.

Circle No. 46 on Reader Service Card for more information

The "LIGHT" TRUCK for that HEAVY LOAD



850 lb.
capacity

Shipping
weight
45 lbs

DICO MODEL 65R

Here's the type of hand truck that your customers have been looking for . . . a "light" all-steel truck that is built to take those heavy loads! Heavy gauge steel box-type side shafts for maximum strength. Scientifically designed and balanced for tipping heavy loads. Equipped with easy rolling DICO molded-on rubber tired, roller bearing wheels. See your jobber or write.

DICO

DES MOINES 5, IOWA

Lift HEAVIER Loads HIGHER the SAFE WAY

NEW Safeway ELECTRIC FORK LIFT TRUCKS

- ✓ 3 sizes offer 68", 80", or 100" lifting heights—rated at 1250 lbs. lift.
- ✓ Powerful hydraulic system activated by auto-type battery. Built-in charger with automatic cut-off, trickle charge.
- ✓ Electronic switch cuts off power at maximum height — prevents jarring load, damage to hydraulic system.
- ✓ Touch control—PUSH to lift, RELEASE to hold, PULL to lower at any speed.
- ✓ Safety hand-operated brakes prevent movement when loading or unloading, provide positive control on inclines.
- ✓ Ruggedly built, easily maneuvered, for long life, efficient one man operation. Load, unload, stack or move materials faster, easier, more safely.

"Snap on" Platform a plus feature
Write for Complete Details

Safeway INDUSTRIAL EQUIPMENT CORP.
184 N. FRANKLIN ST.
CHICAGO 6, ILLINOIS

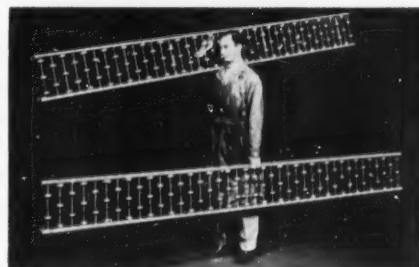
Write or Phone for Demonstration
Phone: RAndolph 6-1604 Chicago

BIG VALUE LOW COST

Circle No. 134 on Reader Service Card for more information
FLOW • NOVEMBER, 1953

Speedways gives you important EXTRAS

with the
NEW
Aluminum
Gravity
Wheel
Conveyors



- EXTRA Portability:** The feather-lightness makes them easier to lift and move. Cuts set-up, knock-down and slow-away time, makes even your smallest-sized worker capable of handling these chores with complete ease and safety.
- EXTRA Strength:** 33 1/3% lighter than steel, yet stronger, tougher and with the same capacity of steel conveyors. They'll move 850 lbs. of live load per 10 lineal feet!
- EXTRA Utility:** Speedways Aluminum Gravity Wheel Conveyors will work for you in every phase of your material handling, plus having extra utility in danger areas where the non-sparking aluminum frames help reduce hazards.
- EXTRA Savings:** Add up these extras! They mean savings in material handling costs . . . in labor time . . . They mean reduced accidents and production speed-up.

GET THESE EXTRAS — with SPEEDWAYS' NEW ALUMINUM GRAVITY WHEEL CONVEYORS
See your SPEEDWAYS Distributor or write today for new Aluminum Gravity Wheel Conveyor Bulletin. No obligation, of course. Write Dept. F-M

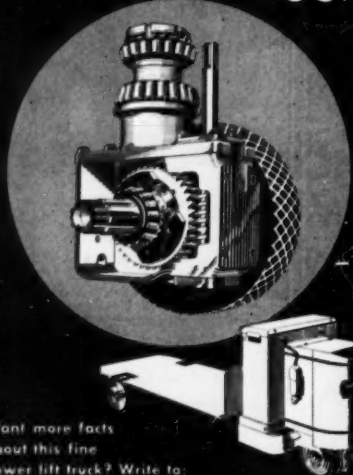
SPEEDWAYS
CONVEYORS, INC.

202 RHODE ISLAND ST.
BUFFALO 13, N. Y.
Also mfg. in CANADA,
UNION of SO. AFRICA

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STUEBING DESIGNED • STUEBING ENGINEERED • STUEBING BUILT

Hydro^{Electric} LIFT TRUCKS give you 50% easier steering



Want more facts
about this fine
power lift truck? Write to:



LIFT TRUCKS
INCORPORATED

The twin front wheel drive of a HYDROELECTRIC allows the operator to make sharper turns in closer quarters with one-half the effort of conventional single drive wheels. This is much more important than having a short truck.

The extreme ease of steering is obtained by the true automotive type of sealed-alloy gear transmission with opposed Timken bearings in steering column and wheels for true alignment. No troublesome chain drives . . . long life . . . less maintenance. Heat treated worm gears transmit power smoothly . . . are trouble-free for years. All gears including differential are sealed in lubricant. The entire power unit is interchangeable on all series "K" models.

2423-31 SPRING GROVE AVE.
CINCINNATI 14, OHIO

There is a model for every purpose to handle any kind of material.

SALES FIELD

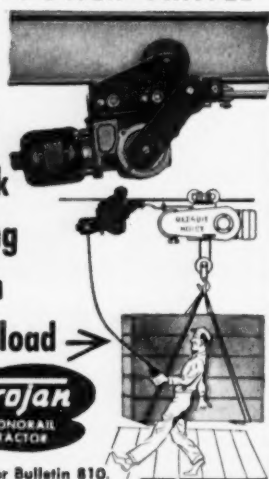
Continued

D. B. Carson, vice president of sales for Sharon Steel Corp., announced the appointment of E. Thomas Erdmann Jr. as sales representative in the Indianapolis district. He joined the company in 1948 and later transferred to the firm's Detroit Tube and Steel division where he also was in sales.

Herman Manas, president of MRM Company Inc. in Brooklyn has revealed the appointment of his company as eastern states representative for Alloy Sales and Engineering Co. MRM will offer sales as well as service and installation of the Alloy line of storage and processing equipment.

Trojan TRACTOR FOR POWER TRAVEL

and
walk
along
with
the load



Write for Bulletin 810.

With a simple, draw-bar attachment, the Trojan quickly converts slow, hand-travelled hoists, small cranes, and other material handling units to fast, power-travel. Save time and effort; speed up production.

DETROIT HOIST & MACHINE CO.

48th Year—Designers & Manufacturers
Hoists and Cranes Since 1905

8239 Morrow St., Detroit 11, Mich.

Circle No. 45 on Reader Service Card
138

RAZORBACK PALLETES

Nailed Pallets . . . Bolted Pallets . . . Shipping Panels . . . Refrigerator Racks . . . Collapsible Boxes . . . made to your own specifications and to meet your particular requirements. You always get QUALITY and SERVICE when you buy Razorback! Write us for prices!

Arkansas Pallet Co.

P. O. Box 794-A Phone 6474
PINE BLUFF, ARKANSAS



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MOVE MORE FOR LESS WITH MICRO LEVER-DOLLIES

Made in Three
Handy Sizes

Usually Purchased and
Used in Pairs

Reasonable
in Price and
Guaranteed

Finest
Materials
and Work-
manship.

After
First
Use You'll
Wonder
How You
Ever Got
Along With-
out Them

Write for
complete
descriptive
circular



MICRON, INC.,
Dept. F
EETTENDORF, IOWA

Circle No. 105 on Reader Service Card
FLOW • NOVEMBER, 1953

CUT DRAWING BOARD TIME ON PLANT LAYOUTS



Now you can "draw" material conveyors, structural components, center lines, etc., simply by unrolling printed self-adhering tapes and mounting them on your layouts. Many different symbols are available, all predrawn and ready for application.

The CHART-PAK plastic board provides an ideal surface for layouts—easy to use and reuse, washable, durable, neat.

With CHART-PAK you will have faster planning and better layouts, at lower costs.

Write for descriptive bulletin.

ATTACH TO YOUR LETTERHEAD

Please send me full information about the CHART-PAK method for:

- ☐ Plant Layouts ☐ Organization Charts
☐ Office Layouts ☐ Graphic Charts

104-F



CHART-PAK, Inc.
104-F Lincoln Ave.
Stamford, Conn.

THERE'S A LOT OF SATISFACTION
WHEN YOU ACTIVATE THE TRACTION
AND YOUR TRUCK ROLLS INTO ACTION
... TO ANOTHER SPOT
WITH AN EASY LITTLE MOTION
YOU DEVELOP LOCOMOTION ...
AND WE KNOW YOU'LL GET THE NOTION
... THAT OUR "GEORGE" IS HOT.

If you are toting heavily-laden boxes of small metal parts... "George," the almost automatic roller truck, is your best buy.

By means of leverage, the truck handle (with box-engaging hook) is pulled forward to glide the tote box onto an upper set of truck rollers where it is held stationary. Truck is easily pulled to destination on its lower set of rollers. Women as well as men operate without lifting or strain injuries. Construction is rugged, compact. Long life, low cost. Buy "George" in quantity, to suit needs of all departments. Good investment.

EASE THE SQUEEZE . . .

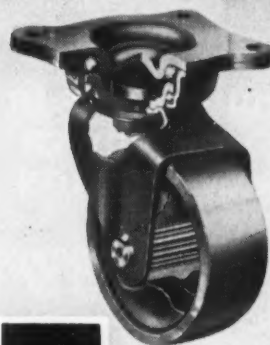
(Continued from page 73)

conveyor in runs of considerable length are impractical for two reasons:

1. A case travelling free on long roller conveyor will build up considerable speed and bang into a blocked case, with damage and breakage resulting.
2. If the pitch of the roller conveyor is reduced so that the case will just barely move, then, when the blocked condition is removed, the line, in many instances, will not start from rest.

Thus, in cases where a slight pitch may be introduced in a live roll conveyor we have what is an inexpensive, belt-driven, live roll conveyor with a very narrow belting, and with pressure rolls spaced as far apart as 10 feet and not closer than 5 feet. As a result, 90 percent of the run is roller conveyor, but the pressure rolls (two driven rolls) every 10 feet provide two effects.

1. As the loads enter an emp-



give
you
more for your dollar

Darnell

Always

SWIVEL

and

ROLL

Casters

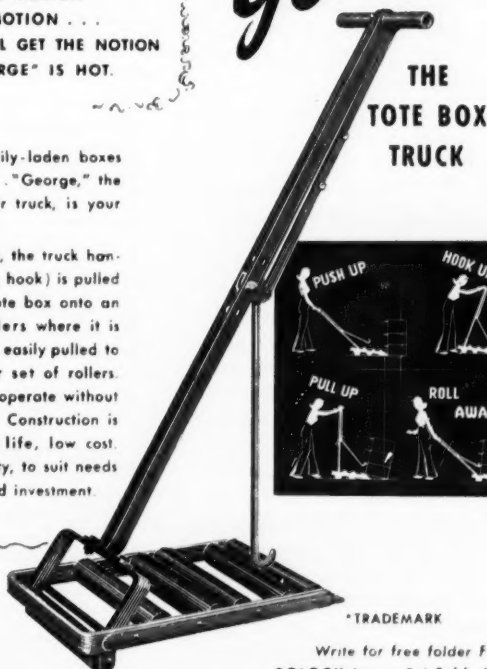
The ease with which your equipment may be guided, and the smooth operation of the positive swivel, will continue over a long life of satisfactory service if you use Darnell Casters.

WRITE FOR FREE
MANUAL

DARNELL CORPORATION, LTD.

DOWNER (LOS ANGELES COUNTY) CALIFORNIA
40 WALDEN STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

LET "George" DO IT



TRADEMARK

Write for free folder F
ROLOCK Inc. • Fairfield, Conn.

ARND

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FLOW • NOVEMBER, 1953

Circle No. 43 on Reader Service Card

139



EQUIPMENT FOR FLUID POWER TRANSMISSION

Primary

Oil Pump

Vacuum

Powerful

Transmission

and

Low

Pressure

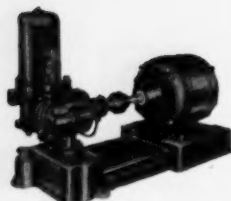
Air Service

At

and

Liquid

Filter



Rotary Air Pumps for vacuum bottling

Kraissl's patented, automatic, force-feed lubrication and flushing system makes these direct-drive, high-capacity pumps ideal for the special requirements of bottle-filling machinery.

Air-cooled design—or water-cooled models for heavier duty.

Class 21 roller-action pumps are recommended for handling corrosive gases and extraneous matter that might jam with closer clearances. The multi-blade design of the Class 25 pumps gives higher capacity efficiencies and is designed for applications requiring higher degree of vacuum.

Where water-cooling is desired for continuous service, the water-jacketed Class 25-WJ models are recommended.

Our exclusive Class 26 design air filter can be furnished as an integral part of each pump, up to 10 cfm—to produce oil-free discharge air and also conserve the lubricating oil.

WRITE TODAY FOR
BULLETIN A-1289



KRAISSL CO

292 Williams Avenue, Haskensack

Circle No. 81 on Reader Service Card

140

EASE THE SQUEEZE

Continued

ty run of the conveyor, and tend to pick up speed on the unpowered rollers, they encounter the driven rolls at not greater than 10 foot intervals. That slows them down and keeps them entirely under control so that high speeds and damage are avoided.

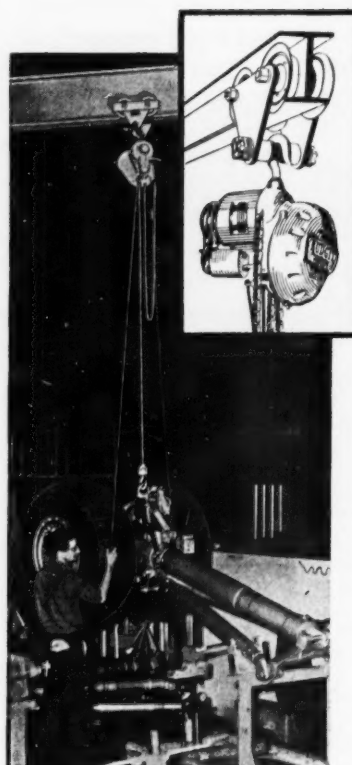
2. When a line has filled up, is entirely blocked, and the stop is removed, the pressure rolls provide sufficient push action to start the entire run of loads from rest in a positive manner.

Thus, a conveyor of the type described combines the advantages of both roller conveyor and a powered, accumulating type conveyor, without the disadvantages of either.

Referring again to the 100 foot long conveyor with blocked loads at 20 pounds per foot, there are two forces (gravity and the driven rolls) which tend to build up pressure. These forces may be calculated as follows:

1. Assuming a pitch of .5 inch per foot, the force of gravity may be calculated at 4 percent less the friction in the bearings at 2 percent, giving a net force of 2 percent. Thus, the force due to gravity against the blocked line is $2,000 \times .02$, or only 40 pounds.
2. The force of the pressure rolls at 10 foot centers may be calculated by assuming that all of the pressure rolls were together. In this case we would have 20 driven rolls (10 pressure rolls) on, say, 4 inch centers, or an equivalent of about 7 feet of power driven conveyor. At 20 pounds per foot this is 140 pounds of blocked load, and at 35 percent friction the pressure due to this power component is about 50 pounds.

Thus, the entire pressure of the combined power and gravity action for this type of equipment is 90 pounds.



GIVE OUTPUT A BOOST!

Help manpower do more. Let the speed and efficiency of the 'Budgit' Electric Hoist step up defense and civilian production. The 1/4-ton size lifts the full load a foot in less than two seconds. All it takes to start this fast lifting action is a slight pull on the control cord with one hand. No muscle strain. Hoisting is easy, safe. A 'Budgit' Hoist lifts all day for a few pennies' worth of current.

The 'Budgit' Hoist is a complete, portable load-handling unit. No extras to buy. Just hang up, plug in, use! Capacities: 250 to 4,000 lbs., A.C. and D.C. models. Prices start at \$129. Bulletin 391 on request.

A 'BUDGIT' I-BEAM TROLLEY

makes any hoist more useful. Tough steel construction. Ball bearings in wheels. Adjustable to fit several sizes of I-beams. Capacities: 500 to 4,000 lbs. Priced from \$15.50. Write for Bulletin 390.



'Budgit'

ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and "Load Lifter" Cranes, "Budgit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, "American" Industrial Instruments.

Circle No. 94 on Reader Service Card
FLOW • NOVEMBER, 1953

WAREHOUSE . . .

(Continued from page 77)

to the second floor and back for shipment.

- (D) For labor comparison purposes, as indicated in the drawing, the following would therefore be true:

1. All stock stored in a one level structure would travel a minimum of "2X" distance and would require men with manual or powered trucks to perform the thousands of trips of "2X" distance yearly.
2. In direct contrast, in a two-floor structure all handling on the first floor would only require "X" transport and, similarly, all stock on the second floor would only be required to travel "X" distance with the following exception: A pallet load can be placed in the receiving station on the elevator and lifted to the second floor automatically, and similarly returned down the other elevator on the shipping side without manpower requirement. However, for such merchandise as is stored on the second floor, there will be required two more pickups and drops at the elevators than will be required in handling the stock on the first floor.

- (E) Comparing one-floor with two-floor operations—at least 50 percent of all stock that is handled on the first floor in the two-floor operation will require only one-half the transport labor required in one-floor operations.

- (F) The same is true of travel on the second floor of a two-floor structure. However, for conservative approach, even if the two extra drops and



"The boss's nephew is visiting him again."



SAVES WORK AND WORKER

'Load Lifter' ELECTRIC HOIST

MAKE LIGHT WORK of heavy lifting in your plant. Use the "Series 700" 'Load Lifter' to speed defense and civilian output. Push-button operation saves time and effort, wards off worker fatigue, keeps machines busy. You save on every lift.

FAST HOISTING IS YOURS when the 'Load Lifter' is installed. The 1-ton size lifts the full load 30 feet a minute. One hand is always free to guide the load into position. Quick stops and starts make spotting easy, accurate.

COMPLETE SAFETY for man, load, and hoist is engineered into every 'Load Lifter'. Steel suspension, heat-treated helical gearing, synchronized load and motor brakes, safety type lower block, and only 24 volts at the push button are your assurance of all-around protection.

LONG-LIFE ECONOMY in heavy-duty service is the record of the 'Load Lifter'. Built with precision and minimum number of parts, designed for one-point lubrication and equipped with ball bearings, the 'Load Lifter' is the best electric hoist investment you can make. Capacities: 1/2-ton and up. Single and two-speed control. Ask your nearby "Shaw-Box" Distributor for details or write for Bulletin No. 399.



'Load Lifter' ELECTRIC HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and 'Load Lifter' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' Industrial Instruments, and Aircraft Products.

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KEEP YOUR PRODUCTS ON THE MOVE



STREAMLINER

CONVEYORS

For almost every materials handling problem in your factory or warehouse there is a "Streamliner" conveyor available for its solution. In addition to requiring little maintenance, these "custom engineered" conveyors reduce unit handling cost and physical fatigue.

If you would like to see how others solved their problems and get a better idea how "Streamliner" conveyors can help you, write today for Bulletin 100—there's no obligation.

HARRY J. FERGUSON COMPANY

121 WEST AVE., JENKINTOWN, PENNA.

WAREHOUSE

Continued

pickups eliminated the value of the horizontal transport time savings on the second floor, we would still have a 50 percent labor saving on 50 percent of all stock handled. The two extra drops and pickups on the second floor operations will seldom amount to the time gained in the horizontal transport work in large warehouses.

(G) The foregoing has been based upon theoretic motion economy principles. Analysis of sales will often indicate that something like 50 percent of all merchandise will turn over up to three times as fast as the remaining 50 percent. In such case, fast-moving stock could be stored on the first floor, and the slow moving stock on the second. In

NOLAN ONE-MAN CAR DOOR OPENER



**Opens Doors in 20 seconds
or less!**



The Nolan Car Door Opener gives one man a tremendous amount of pulling energy, to get the most stubborn, hard-rolling door wide open in a hurry! New chain has 2000 lbs. tensile strength.

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

New safety and efficiency features now make the Nolan 1-Man Car Door Opener a more necessary labor-saving money-saving help than ever before.

**Many thousands in
constant daily use!**

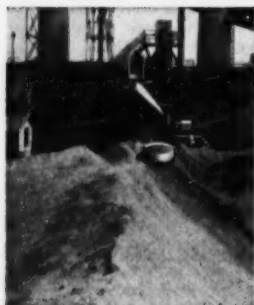
Free Literature. Order one or more NOLAN Model-II Car Door Openers now. Catalog on request.

The NOLAN Co.,
118-C Pennsylvania St.
Bowersville, Ohio

\$37.50

F.O.B. Bowersville

REDUCE BULK STORAGE LABOR AND EXPENSE...



Scraper storing and reclaiming wet phosphate rock alongside drying plant.



Scraper reclaiming gypsum rock from wall to wall in storage building.

with a

SAUERMAN SCRAPER

You can drastically reduce the cost of storing and reclaiming bulk materials with a Sauerman Power Drag Scraper. That's because one man can operate it—can quickly handle tons of raw or processed materials, indoors or out, in a space of any size or shape. Sauerman Power Scrapers are low in first cost, too—seldom need repairs. For stockpiling coal, they offer the added advantage of building a compact pile that prevents spontaneous combustion.

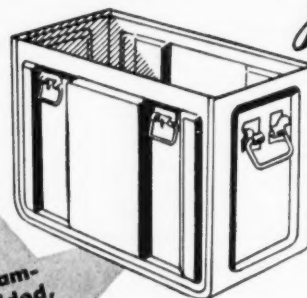
Write for free, illustrated catalog on bulk handling methods.

SAUERMAN BROS. Inc.

540 S. Clinton St.,
Chicago 7, Ill.

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Steel SHOP and TOTE Boxes



Seam-welded,
oil and
water tight

ONLY
79¢
EACH*

*in 5000 lots, F.O.B.
Michigan City, Indiana

17½" long x 8" wide x 13" deep

(Inside Dimensions)

Stubborn insistence on "brand new" tote boxes may mean that you are paying for 4 boxes but getting only one. Thousands of manufacturers have been using these oil and water-tight steel boxes for years, at a great saving. You, too, can save! Just tell us how many you need. We'll give you the lowest prices.

BARNES and SMITH CORPORATION
6521-B W. State Street • Milwaukee 13, Wis.

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FLOW • NOVEMBER, 1953

CUT YOUR HANDLING COSTS!

With Osborn's Platform Skids
and Bottomless Stacking Rings



Type L-2500#
Type M-3500#
Type H-5000#

Angle Iron Bound
Hardwood, Heavy
Bar Steel Formed
Legs
Replaceable Decks
Built for Hard
Usage with Min-
imum Upkeep.



C. D. OSBORN

AND COMPANY

728 Division Ave.

GRAND RAPIDS, MICHIGAN

Distributors' Inquiries Invited

such hypothesis, it would be possible to save half the horizontal transport labor on three-quarters of the volume of merchandise handled per year.

(H) A two-story structure would give you the same physical, internal square-footage for one-half the land area as a one-story structure would afford. Further, this would permit a later 100 percent expansion, using one-half the land in total, that a one level 100 percent expansion would require.

This, of course, is not applicable when planning a building of such rectangular shape that the long receiving side would encompass a railroad siding twice that shown in the schematic drawing. In such a case, the width of a building would not cause increased cross-area transport labor. However, such a long, narrow building frequently proves to be impractical.

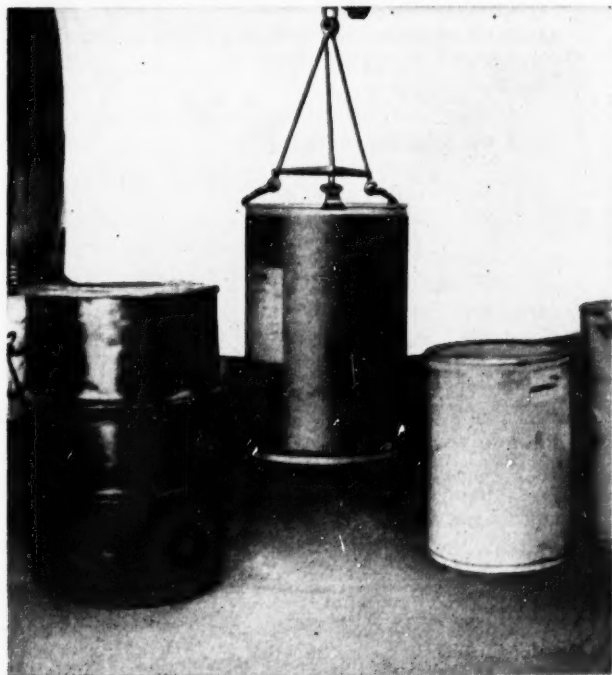


GOES PLACES IN NARROW SPACES—

Revolator Go-Getter Powered Hand Truck permits maximum use of storage or productive areas. The compact model shown above is a Hi-Straddle Lift with fingertip control—fully automatic 200° turning arc—slight operator training. Let us know your problem and we'll help you solve it. Phone or write Revolator Co., 8739 Tonnele Ave., North Bergen, N. J., UNION 3-8120.

MANSAYER GRABS®

Handle Varied Loads



Some models of Mansaver Grabs adjust themselves to different kinds of loads and even different sizes. One of these is Style 1552. At the left, this versatile grab is handling a standard fibre drum, which could be either filled or empty. Its next pick-up might be another drum of larger or smaller diameter, or the 50-gallon steel drum standing near by. Compare this safe, easy hoisting with the problems of manual handling or trucking.

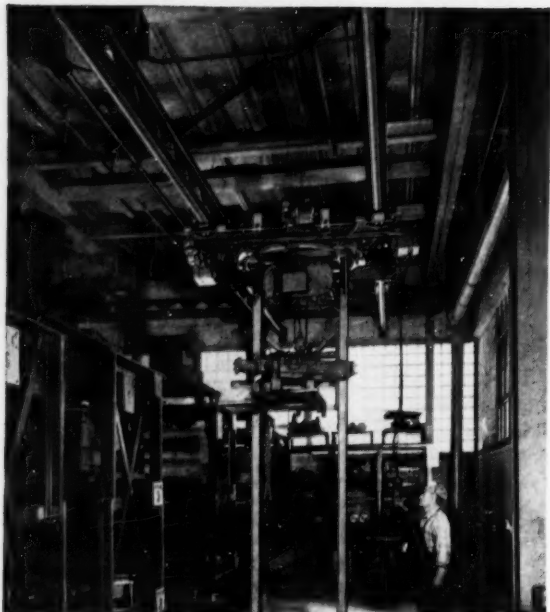
Compare also the cost of operation and you may find, like many of our customers, that a Mansaver Grab in your plant will more than pay for itself in savings over a short time. Our catalog gives the story. It is yours for the asking.



★ MANSAYER INDUSTRIES • 3103 EAST ST., NEW HAVEN, CONN. ★

Circle No. 95 on Reader Service Card for more information

60% MORE DIES NOW STORED



ONE MAN NOW CONTROLS DIE STORAGE WITH 60% MORE DIES STORED IN THE SAME FLOOR SPACE

Without extra building, a large Mid-Western manufacturer of internal combustion engines has solved a difficult die storage problem by installing a Louden Monorail System. Capacity of the storage area has been jumped 60%, "housekeeping" efficiency has been increased, while the labor force has been reduced from several men to one-man control.

The "tiering" trolley, operating on a double-girder crane with turntable, permits easy, accurate positioning of dies in assigned bins. Complete push-button operation allows one-man control. The skid method of handling eliminates damage caused by slings or dropping.



FREE BOOK . . . Case histories of successful Monorail applications. Write for "Economical Material Handling" today.

THE LOUDEN MACHINERY COMPANY
7212 S. Court St., Fairfield, Iowa

Louden

OVERHEAD MATERIAL HANDLING

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NEW EQUIPMENT . . .

(Continued from page 44)

Elevating Conveyor

Pick up and discharge can be automatic or manual on the new Robo-Lift tray elevating conveyor. In handling cartons, cases, crates, drums, barrels or other articles, speed up to 12 articles a minute can be attained, according to the Counsel Machine Company, Inc., the manufacturer. Multi-floor operations are possible. Cases or cartons may be picked up at several levels and deposited on the loading platform. The Robo-Lift is also said to be capable of vertical to horizontal or horizontal to vertical conveyance without transfer.



Circle 192 on Reader Service Card for more information

Roller Bearing Slide Racks

The addition of roller bearing slides to "Stack-racks" allows heavy boxes or bins to slide in or out. The slide racks lock together, without tools, to form storage units of any size, shape or capacity. Tote boxes or Stackbins can be stored like drawers, keeping small parts and materials accessible. Manufacturer is Stackbin Corporation.

Circle 193 on Reader Service Card for more information

Dual-Purpose Hand Truck

Shown here is a combination steel hand truck and step ladder which fulfills the conventional usages of both. Manufactured by Fairbanks Company, its specially-designed features of curved cross-bars and a solid nose plate give the unit its dual advantages. As a hand truck, it can handle boxes, cartons, crates, cases, kegs, bags and odd-sized merchandise. As a step ladder, it leans into work on the nose plate which serves as a firm base, and provides an elevation platform. As an example of its versatility in plant stock-

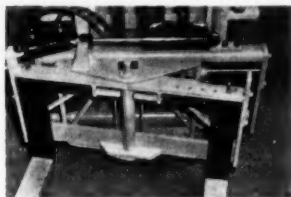


rooms and warehouses, merchandise can be delivered to bins and then stocked in bins beyond reach in the same operation.

Circle 194 on Reader Service Card for more information

Load Pivot for Truck

New unit for Hyster trucks hydraulically controls the forks so that the load pivots to either side and also shifts sidewise. Originated and designed by Tom Melin, formerly chief engineer of the Owens-Park Lumber Company, Los Angeles, and manufactured by the Swing-Shift Manufacturing

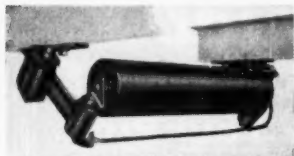


Company, the unit is said to permit maneuvering a 94-inch wide load through a standard 84-inch single door. Storage capacity is said to be safely increased by precision-aligned stacking in five seconds without moving the truck from its original approach. The units are available for Hyster 3000 to 15000-pound capacity lift trucks.

Circle 195 on Reader Service Card for more information

Return Idler

The new Rex Style No. 41 Roller Bearing Belt Training Return Idler is designed to assure positive aligning to reduce belt damage from roving. Produced by the Chain Belt Company, the idler



has a dead-shaft roller bearing return roll. The roll is mounted at each end to a toggle-like arrangement of swivel arms from the conveyor framework at an angle of approximately 45 degrees in the direction of belt travel. The idler acts to maintain an equilibrium, with the belt in the center of the roll and the roll in normal position. The action is said to be equally effective on horizontal, inclined or declined conveyors.

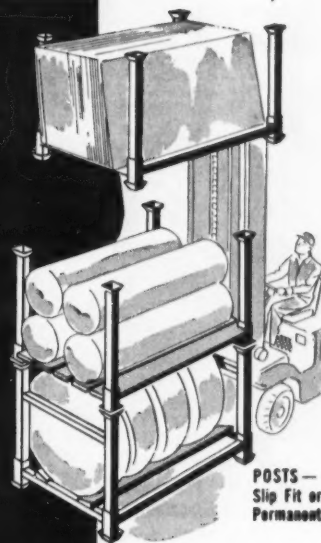
Circle 196 on Reader Service Card for more information

Loading Ramp

Power trucks are made more effective in loading yard cars through the application of an all-magnesium loading ramp. Produced by Magline Inc., the ramp is engineered to support 13,000 pounds or more. Thirty feet long and 6 feet wide, it is raised or lowered by a hydraulic lift. It can be moved, however, by one man. A safety lock an-



**75%
more
storage
in many
areas
using**



Paltier

"TIERS OF RACKS"

PYRAMID RACKS

PATENTED

**SAVE SPACE . . .
and YOU SAVE DOLLARS!**

PALTIER PYRAMID RACKS are storing as much as 75% and more crushable, bulky and irregular shaped items in the same storage area — in industry after industry. They save their cost in no time at all.

A Paltier User Says:

"We are now able, in one operation, to load and unload various colors or styles of asphalt or asbestos shingles while under previous systems it sometimes required movement of five to eight stacks of material to obtain the pallet where the correct item was stacked"

— a real time saver!

Ask Us!

A Paltier storage engineer will be glad to show you how you can save storage space, too, with the Flexible Paltier System. Ask us, without obligation.

Write for 16-page Catalog

THE PALTIER CORPORATION
1709 KENTUCKY ST.
MICHIGAN CITY, IND.

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Circle No. 82 on Reader Service Card for more information

**WON'T
SMUDGE
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RESISTS:
DIRT
GREASE
WATER
ACIDS**

**LABELON
PLASTIC**

Write on it
TAPE

**STICKS
WITHOUT
MOISTENING**



**For INVENTORY
OFFICE, ROUTING,
MAINTENANCE,
etc.**



Write to Dept. FX

Nothing else like LABELON—the amazing "Write on it" plastic tape! Use it to label stockroom shelves, bins, tools, hard-to-mark parts; for indicating rejects and service department repairs; for marking laboratory equipment, supplies, experiments; for panel boards or wiring; for office files, folders, etc.

LABELON TAPE sticks without moistening to any smooth, clean surface—yet can be quickly removed. Resists heat up to 160°. Just write on it with pencil or stylus—message won't smudge. Choice of widths and colors. Handy dispenser with cutter bar.

See your nearest dealer, or
write for sample and prices.

LABELON TAPE CO., INC.
450 Atlantic Ave., Rochester 9, N. Y.

chors the ramp to the car during loading. It is towed by means of a retractable trailer hitch. In addition to loading yard cars, the unit is recommended for use where dock facilities are crowded or in places with no dock facilities.

Circle 197 on Reader Service Card for more information

Standard Unit Rectifiers

Standard unit rectifiers now in stock at the American Rectifier Corporation range from 3 to 50 kilowatts with 125 or 230-volt D.C. output. Units can be obtained to accommodate any AC voltage or frequency input. The rectifiers are tested with a 200 per cent overload.

Circle 198 on Reader Service Card for more information

Crawler Excavator

Radical changes in engineering design, which relocated the upper machinery behind the excavator's center of rotation, are incorporated in the new crawler mounted excavator of the Koehring Southern Company, subsidiary of the Koehring Company. The excavator is rated at ½ cubic yard dipper capacity for shovel and hoe, with a simplified upper machinery arrangement that involves only two horizontal shafts. The lift



HANDLING BULK MATERIALS? "TAKE IT UP A FLO-TUBE"



To fill 3 or more hoppers use gate-valves in Flo-Tube horizontally. Below, filling 2 hoppers with "Y" chute.



The spiral conveyor of steady, dependable service. Sturdy cast iron trough bolts together in 3 ft. sections, capped with steel plates for easy removal if ever necessary. Built to take the abuse of coal, yet with tolerances just right to handle materials from grain size to lump.

Hopper level maintained by "off-on" automatic switches. Exposed end for pick-up

CANTON STOKER CORP.

SPECIALISTS IN AUTOMATIC COAL FIRING,
HANDLING AND CONTROL EQUIPMENT
108 ANDREW PLACE S. W. • CANTON, OHIO

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146

Industrial CRANES Improve Your Profit

INDUSTRIAL

3 TONS

Pillar Cranes
Up to 6 Tons
Boom Swings
360 Degrees

Handle Material to and from Open Cars, Trucks and Machines at Lower Cost

WRITE FOR LITERATURE

INDUSTRIAL CRANE & HOIST CORPORATION

Formerly Industrial Equipment Co. 1
331 NORTH ADA STREET CHICAGO 7, ILLINOIS
Overhead Cranes • Jib Cranes • Monorail Systems
Crane Runways
Representatives in Principal Cities

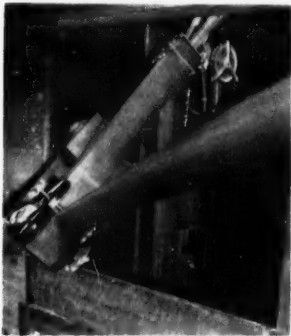
Circle No. 58 on Reader Service Card for more information
FLOW • NOVEMBER, 1953

capacity is 10 tons. The excavator is equipped with carburized steel gears fully enclosed for dirt-free lubrication. There are also automatic brakes, new cab design and operating lever arrangement, adjustable hook rollers and an electric dipper trip.

Circle 199 on Reader Service Card for more information

Centrifugal Thrower

This centrifugal thrower unit is designed to load box cars over the top of three 20-inch grain doors. The loader unit is mounted on a sloping feed chute which pivots into the car. The operator can load and trim the car without entering it, since the thrower unit pivots on the end of the feed chute to reach all corners of the car. Throw direction is controlled by a chain-operated wheel from the loading dock. The thrower can handle all types of granular and small lump bulk material up to 2-inch size. Material is thrown by a high-speed belt held in a concave path by two idler discs along its outside

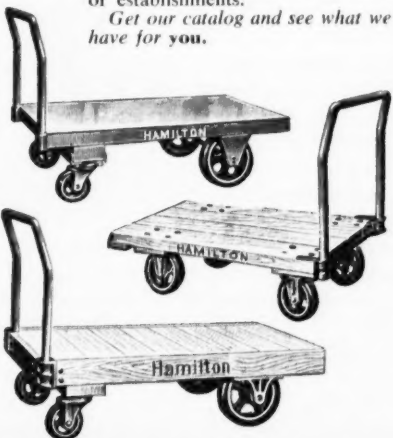


HAMILTON

Each model originally designed for a customer

In virtually all cases, the "ancestors" of the trucks shown in the Hamilton Catalog were custom-built to meet customers' individual needs. So we have platform trucks, box trucks, shelf trucks, table trucks, wagon trucks, hand trucks and many unique trucks designed specifically for all conceivable kinds of establishments.

Get our catalog and see what we have for you.



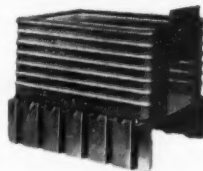
THE HAMILTON CASTER & MFG. CO.
1672 Dixie Highway • Hamilton, Ohio

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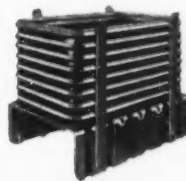
**Preferred
Throughout
Industry**

Republic STEEL BOXES AND SKIDS

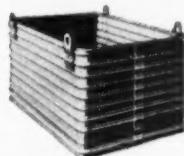
● Designed to give maximum strength and rigidity, Republic Steel Boxes and Skids are preferred throughout industry for their ability to carry the load and keep things moving. Specify "Republic" when you want the best in steel boxes and skids.



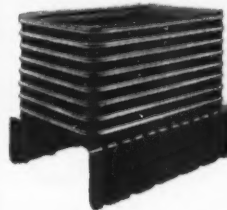
Type PB-650 box and platform unit with sliding end door.



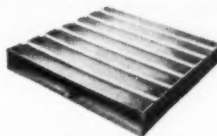
Type PB-120-L box and platform unit with full lifting lugs.



Type PB-80C box unit equipped for crane handling; corrugated bottom.



Type PB-120 steel box and skid platform unit.



Double face steel pallets; no sharp edges; economical.



Type P-1 skid platform in your choice of standard widths, lengths and clearance heights.



Write for illustrated catalog describing the complete line of Republic Steel Boxes, Skids, Pallets.



**PRESSED STEEL DIVISION
REPUBLIC STEEL CORPORATION**
6222 TRUSCON AVE. • CLEVELAND 27, OHIO

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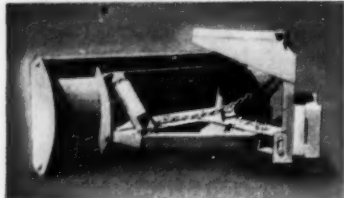
Circle No. 15 on Reader Service Card for more information

THIS WINTER, KEEP OUTDOOR HANDLING ON THE MOVE!



ALLEN SNOW PLOW for FORK TRUCKS

Fits On Regular Forks
Easy To Put On
And Remove



An Allen Snow Plow on one of your fork trucks will clear yard areas and roadways of snow in a hurry. And, it can be used for back-filling, grading and other yard maintenance work.

Get ready for winter now . . . get complete details on the rugged Allen Snow Plow for pneumatic and semi-pneumatic tired fork trucks. Do it today to insure early delivery.



ALLEN INDUSTRIAL PRODUCTS, INC.

1200 LIBERTY STREET, BATTLE CREEK, MICHIGAN, U.S.A.



\$325⁰⁰

F.O.B. Springfield, Ohio

Buy a POWER Floor Sweeper

Now the benefits of Parker power sweeping can be yours at the lowest price in the floor sweeping industry. Famous Parker "tough use" construction. Sweeps all kinds of floors . . . easily emptied . . . easily maneuvered in small spaces . . . pays for itself in a remarkably short time. Get our latest complete-line bulletin . . . get a Parker floor sweeper and prove its great man-saving, cost-saving operation on your own floors. Write PARKER SWEEPER CO., 711 BECHTLE AVE., SPRINGFIELD, OHIO.

PARKER FLOOR SWEEPERS

Manual and Motorized Models

Circle No. 116 on Reader Service Card for more information

I48

edges. Due to centrifugal action, particles are hugged tightly against the belt and quickly pick up speed. Materials are thrown to box car corners at rates up to 80 tons per hour. Manufacturer is Stephens-Adamson Mfg. Co.

Circle 200 on Reader Service Card for more information

Dual-Purpose Superframe

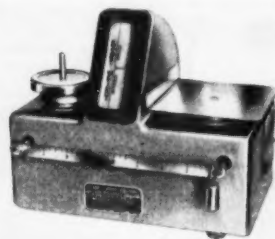
Said to be the answer to the problem of manufacturers who handle both skids and pallets, this truck is manufactured by Lewis - Shepard Products, Inc. It has a hinged superframe, and when this frame is in its "down" position, the truck will operate with skids like any hydraulic platform type. The frame can be made to accommodate any skid underclearance. When the frame is swung up, it is automatically secured into place and is well out of the way for pallet handling. None of the length of the pallet forks is lost when the frame is not in use. The truck is arc-welded, one-piece frame, with capacities to 6000 pounds. The hydraulic lifting mechanism is sealed to prevent tampering, has no hose lines or couplings.



Circle 201 on Reader Service Card for more information

Center Tower Scale

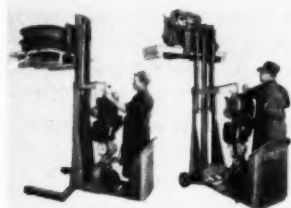
The Exact Weight Scale Company announces an addition to its line of Shadograph models. It's this newly-designed center tower type, 4200 Series, which incorporates all the features of the previous models, plus added improvements. It has a commodity platter on one side of the tower and a counter-weight platter on the other side. The scale is built with the beam and poise mounted on the front of the scale for easy accessibility. Since the beam and indicator dial are in direct line with the operator's vision, these features are of particular value in operations which require frequent changing of the poise settings. The 4200 Series is furnished in a capacity range from 50 grams, with a sensitivity of 10 milligrams, to 1500 grams with a sensitivity of 350 milligrams.



Circle 202 on Reader Service Card for more information

High Lift Trucks

Two new lift trucks, designed by the Truck-Man Division of The Knickerbocker Company to solve the problem of low load limits on elevator



floors in the light weight, low cost and high lift field, have been announced. They are designed around the 360-degree rotating power turret on the company's models that

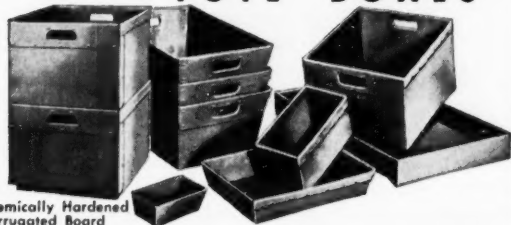
are used in horizontal movement. One model is a counterweighted high lift having a capacity of 1500 pounds and weighing 1700 pounds. The other model is similar, but balance is maintained by stabilizing outriggers which project forward on each side of the load. This has a load capacity of 1300 pounds. Power is provided by an air cooled engine said to operate on a single gallon of gasoline under normal conditions on an 8-hour shift.

Circle 203 on Reader Service Card for more information

Variable Speed Drive

The Reeves Flexi-Speed Drive is said to be extremely versatile in application and operation. It is a combination of constant speed disc assembly,

FAMOUS "CHEM-BOARD" CONVOY TOTE BOXES



*Chemically Hardened Corrugated Board

SOLD THROUGH LOCAL INDUSTRIAL DISTRIBUTORS

Cost—weigh—50% to 60% less than steel. A wide range of sizes in standard and custom made NESTING, STACKING, VERTICAL TOTE BOXES. Write for complete information, prices, name of distributor in your area.

CONVOY RECORD STORAGE FILES

Sold Only by YOUR LOCAL STATIONER

Used by most famous names in industry and businesses of all kinds. CONVOY "CHEM-BOARD" files for record storage made in letter, legal, and 12 other sizes. Stack to ceiling, mate together. Call your local stationer or write for name of stationer nearest to serve you.



CONVOY, INC.

Canton 6, Ohio
P. O. Station B, 216-F

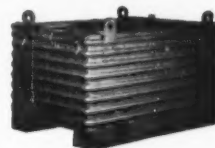
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Here's why

logged BRUSCO handling equipment increases efficiency

No. 558 BRUSCO CORRUGATED STEEL BOXES

Save floor space — stack safely from floor to roof. Four way entry for fast, efficient handling. Equipped with crane lugs for movement by crane. Fabricated from heavy gauge corrugated steel to give added rigidity and maximum strength. Thoroughly and securely arc welded for longer, maintenance free life. Made in various sizes and load capacities to suit your requirements.



No. 559 BRUSCO CORRUGATED SKID BOX

Saves valuable floor space and speeds production. Made in all sizes and various gauges of steel to fit any load capacity. Stack from floor to roof.



No. 1210 BRUSCO SELF DUMPING HOPPER

Speeds production and saves labor in handling parts and materials in your plant. Easy to move and simple to operate. Hopper is fabricated of heavy steel plate thoroughly reinforced. This unit is equipped with a new, cast steel rocker and hardened pins for longer service. Made in 1/2, 1, 1 1/2 and 2 cubic yard capacities. Underclearance optional.



Write today for new Bulletin No. 500 presenting the most complete line of Part Boxes and Brusco Self Dumping Hoppers on the market.

Brusco

HANDLING EQUIPMENT

BRUMMELER STEEL PRODUCTS CORPORATION

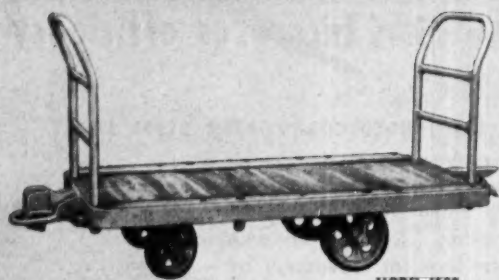
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Circle No. 78 on Reader Service Card for more information

JAKES

**America's Finest
Industrial Trucks and Trailers**



MODEL 1500

Literature available
Capacities from 2,000 to 10,000 pounds

JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue

Nashville 9, Tennessee

**INTERCHANGEABLE READY-POWER
OFFERS 4 IMPORTANT ADVANTAGES
OVER OTHER GAS-ELECTRIC DRIVES**



- 1 Only Ready-Power Units are interchangeable for quick maintenance... and full-time truck operation.
- 2 Ready-Power is backed by over 25 years of experience.
- 3 Only Ready-Power offers Diesel-Electric power for industrial trucks.
- 4 Only Ready-Power offers a full range of gas-electric and Diesel-electric units.

Remember... Your Truck is No Better Than Its Power!



The READY-POWER Co.

3838 Grand River Ave., Detroit 8, Michigan

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

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150

mounted on the motor shaft; shifting mechanism with built-in speed indicator; a variable speed disc assembly mounted on the driven shaft; and double-cog belt. It converts any standard constant speed motor to an infinitely variable speed drive with speed ratio up to 8:1. The drive may be used with right-angle or parallel shaft reducers, counter-shafts, chain and sprocket or V-belt drives. Manufacturer is Reeves Pulley Company.

Circle 204 on Reader Service Card for more information

Bus and Truck Mover

This heavy-duty floor jack, the "V" mover, can be used for numerous operations in and around storage and maintenance shops servicing fleets of trucks and buses. Manufactured by The Moto-Truc Company, it can handle vehicles weighing up to 25,000 pounds. The frame is heavy steel plate, welded and assembled together to form the chassis, and the chassis length is determined by and made to accommodate individual needs. Powered by a heavy-duty 18-volt battery, it has two speeds for both backward and forward movement.



Circle 205 on Reader Service Card for more information

Non-Electric Magnetic Rolls

These non-electric concave and straight magnetic rolls with high surface strength and designed to cut costs of handling pipe, rods, angles, flat sheets, plates, bars, etc. Manufactured by Dings Magnetic Separator Company, the rolls require no electric current, and their magnetic strength is said to be certified, guaranteed permanent for the life of the unit. Rolls for conveying pipe, rods, angles, etc., are concave in shape to keep these materials centrally located. Rolls for handling flat material are straight faced.



Circle 206 on Reader Service Card for more information

Straight Portable Base Supports

Standard Conveyor Company announces a new design of straight portable base for supporting straight sections of conveyor in lines where extreme portability and vertical adjustment is required. The support is adjustable in length at the center tie to accommodate varying



length sections, from 5 to 10 foot. The support comes in three sizes, providing vertical adjustment to give conveyor elevations from 18 to 28 inches, or from 24 to 40 inches, or from 30 to 52 inches. The portable base is furnished with four ball bearing swivel casters having 3-inch diameter hard rubber wheels.

Circle 207 on Reader Service Card for more information

Bulk Material Handler

Another Scoot-Crete bulk material handler has been announced by Getman Brothers. The 3000-pound capacity unit, known as the Scoot-Crete Model N-52, is diesel powered. The unit will turn within its own 90-inch length, is 43 inches wide and the operator's head is about 68 inches

above floor level. Gross empty weight is approximately 1100 pounds. Operating speeds range from 1 to 15 mph through standard truck transmission. An automatic transmission with a high-speed forward and reverse is available at extra cost. It is equipped with either flat rack or 14, 16 and 20 cubic foot dump box bodies.

Circle 208 on Reader Service Card for more information



Moving or Storing is Rapid, Convenient and Inexpensive with

IRONBOUND SEMI-LIVE SKID PLATFORMS



Ruggedly built with capacities up to 2500 lbs. These units are quickly made mobile with the use of low cost lift jacks . . . One of the methods that Ironbound engineers use to increase production and conserve space at low cost.

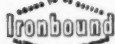


SEMI-LIVE SKID WITH BOX TOP

. . . permanently attached or removable. Also available with many other superstructures to "Short-Haul" your products thru production or into storage. Useful in hundreds of spots in every plant.

THE IRONBOUND "SAFETY-SKID" WITH ROUND CORNERS

Ironbound construction assures long hard use with complete safety to product and operator. Still the time proven method for handling of materials efficiently and economically.



IRONBOUND

BOX & LUMBER COMPANY

Materials Handling Division

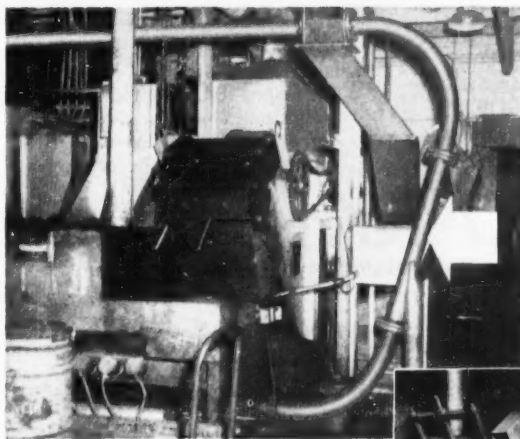
30 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS

Circle No. 77 on Reader Service Card for more information
FLOW • NOVEMBER, 1953

SEE HOW YOU CAN HANDLE "HOT JOBS" WITH *Hapman* TUBULAR CONVEYORS

and save money too!



THREE MAN-DAYS AND EIGHT HOURS of valuable production time every month were formerly lost in removing scale from the quench tank at Bower Roller Bearing Co., Detroit. An unpleasant job, too!

NOW . . . A HAPMAN TUBULAR CONVEYOR removes the scale as it collects . . . takes no labor or production time . . . gives big savings!

HAPMAN'S UNIQUE, patented "Sealed-Pin Chain" construction is highly resistant to abrasive and corrosive action . . . gives greater chain life . . . cuts operating costs. Solid, tubular design is liquid-tight.

LET HAPMAN TUBULAR CONVEYORS handle your "hot jobs" . . . save your money . . . boost your efficiency. Get all the details.

WRITE TODAY FOR BULLETIN F-1153



Chip-handling conveyor will remove chips from coolant.



Cross section showing Sealed-Pin Chain and Neoprene Flights.



Circle No. 69 on Reader Service Card for more information

Circle No. 166 on Reader Service Card for more information



Do YOU also need a
PREST-O-MATIC®
electrically operated Industrial Door?

AVAILABLE IN
BI-FOLD SLIDING OR
LIFT TYPE

CONTROLS MAY BE
APPROACH PULL-
CORD, FLOOR PLATE,
ELECTRIC EYE OR
PUSH BUTTON

INSTANTLY
REVERSIBLE FEATURE
OPTIONAL

WITH OR WITHOUT
PASS DOORS

Lost time, damaged products, wasted heat, sneezing workers and traffic confusion are all arguments for well-designed, properly built automatic doors, that

OPEN OR CLOSE IN 3½ SECONDS

Prest-O-Matics require no fitting or alteration; can be installed by any plant crew in approximately 2 hours, and permit FULL use of existing doorway width. Write for Catalog!

CLARK DOOR COMPANY
514 HUNTERDON STREET, NEWARK 8, N. J.



If you are looking for a rugged, easy-running trailer, the THOMAS "General" is the trailer for you. A choice of 5 platform sizes that can be "Job-Suited" with superstructures to carry your loads more efficiently and economically. Available with steel or rubber-tired wheels, with Hyatt roller bearings and automatic or manual couplers. Before you buy an Industrial Trailer find out how THOMAS can increase your production and lower your handling costs.

**THOMAS TRUCK
AND CASTER COMPANY**
420 Mississippi River
KEOKUK, IOWA

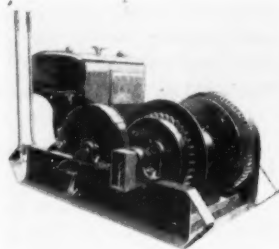


Send
for Free
Literature

Circle No. 147 on Reader Service Card for more information
152

Car Puller

A car puller, Model 2510-H, has been introduced by King Mfg. Corp. for pulling a string of empty or loaded freight cars. Wire cable is used, and the drum is free spooling so that the cable can be walked out. The oversize hydraulic clutch is said to make engaging the load easier. The power plant is a Wisconsin VF4U air cooled 4-cylinder engine, and can be equipped with a self-starter mechanism if desired. An electric motor can be installed as power, or the puller can be obtained without power. Anti-friction bearings are used throughout to reduce friction loss.



Circle 209 on Reader Service Card for more information

Steel-Hardwood Pallet

A steel and hardwood pallet which is assembled entirely without fasteners and which embodies novel features, has been introduced by Econoweld Corporation. The pallet is claimed to eliminate all costs of maintenance and replacement due to fastener failure. The steel members consist of three tubular steel skid runners welded to a deck-retaining frame of angle iron which armors the hardwood deck. Deckboards are nested in the retaining frame and are clamped in position by a keyboard spring lock. Bottom boards are individually secured by heavy-gauge steel containers welded to the skid runners.



Circle 210 on Reader Service Card for more information

Front End Loader

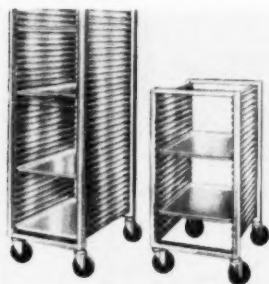
A 4-wheel planetary drive, 4-wheel power steering front end loader, the Scoopmobile Model LD5, is announced by Mixermobile Manufacturers. It is said to feature a new principle of construction by hinging two power axle elements together with an oscillating center-pin steering coupling. This coupling allows an oscillating twist to the axles, retaining full power on all four wheels in any degree of the turning radius. Capacity is 1 yard, and discharge height is 9 feet. Reversing transmission has eight speeds forward and back. Diesel power is optional at extra cost.



Circle 211 on Reader Service Card for more information

Corrugated-Side Rack

Shelves can be located to suit the parts being stored in the material handling racks developed



by Crescent Metal Products, Inc. Trays or tote boxes act as the shelves, and are slid into the grooves formed by the corrugated side walls. Corrugations are on 1½-inch centers. The racks are mounted on 5-inch heavy-duty ball-

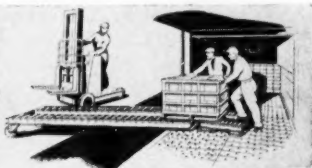
bearing casters to facilitate movement of racks from operation to operation. All parts are made of lightweight aluminum alloy to provide ease of handling. When specified, steel construction will be supplied. Units are available to handle from 6 to 82 trays, and various size trays can be accommodated.

Circle 212 on Reader Service Card for more information

Two-Way Radio Set

The General Electric Company has announced a two-way radio set designed especially for use on material handling vehicles. The unit is intended for use in the Low Power Industrial

Efficient Reefer Car Loading



710 Dolly has closely spaced rollers on top for rolling loaded pallet on or off and closely spaced rollers on bottom for smooth, easy rolling over slatted floors.

725 Roller Ramp has swivel-mounted hard rubber wheels at one end and handles at the other for easy moving.

Narrow doors, slotted floors, and wide space between dock and car, required for opening doors of some refrigerator cars, have heretofore handicapped pallet loading. OLSON Type 710 Pallet Dolly and 725 Roller Ramp overcome these conditions.

The Dolly is placed inside the car with Ramp bridging from dock to car. Loaded pallet is set on Ramp with fork truck and rolled onto Dolly, then rolled on Dolly to unloading position.

New bulletin describing 710 Dolly and 725 Roller Ramp, also OLSON Pallet Dollies of other types mailed promptly on request.



Circle No. 99 on Reader Service Card for more information
FLOW • NOVEMBER, 1953



Bin Flow Problems?

Bring them to the PneuBin BOOTHS

C-155 • C-156 • C-157 • C-158

24th EXPOSITION OF THE CHEMICAL INDUSTRIES

Visit our booths at the 24th Exposition of the Chemical Industries, November 30th to December 5th, in Philadelphia. PneuBin engineers will explain and demonstrate this revolutionary new device, designed to eliminate bridging, rat holing, caking or slow-flow due to high-viscosity.

The PneuBin unit consists of a steel-backed neoprene panel, mounted on the inside wall of your bin. By inflation and deflation of the panel, the bin contents are displaced and disturbed to activation.

See this quiet, vibrationless PneuBin in operation at the show.

Regardless of what your bin flow problems are . . . bring them to PneuBin at the show.



PneuBin is a product of
GEROTOR MAY CORP.
BALTIMORE 3, MD.

Manufacturers of **GEROTOR**
HYDRAULIC PUMPS & MOTORS

Circle No. 60 on Reader Service Card for more information
153

Circle No. 12 on Reader Service Card for more information



Process Belts by

ASHWORTH

for Annealing • Brazing • Bluing
Burn-off ovens • Carburizing
Core Baking • Hardening • Metal Finishing
Metal Washing and Degreasing • Nitriding
Pickling • Quenching • Sintering • Tempering

Engineered to Keep Your Product on the Move

WRITE FOR
ILLUSTRATED
CATALOG 52F

ASHWORTH BROS., INC.
METAL PRODUCTS DIV. • WORCESTER, MASS.

Sales Engineers:

Buffalo • Chattanooga • Chicago • Cleveland • Detroit • Kansas City
Los Angeles • New York • Philadelphia • Pittsburgh • Rochester
Seattle • St. Paul • — Canadian Rep., PECKOVER'S LTD. - Toronto - Montreal

Save time! Prevent accidents!

LIFT AND DUMP

MECHANICALLY

BAGS
BARRELS
DRUMS
BOXES

REDUCE HANDLING COSTS with a Cesco Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

ESSEX CONVEYOR, INC.
101 Colden Street • Newark, New Jersey
COLSON EQUIPMENT & SUPPLY CO.
1317 Willow Street • Los Angeles 13, California



CESCO SKIP HOIST DUMPER

Circle No. 37 on Reader Service Card for more information

154

licensing classification established by the Federal Communications Commission. It measures only about 20 inches long, 8 inches wide and 7 inches high. It weighs about 20 pounds.

Circle 213 on Reader Service Card for more information

Versatile Hand Truck

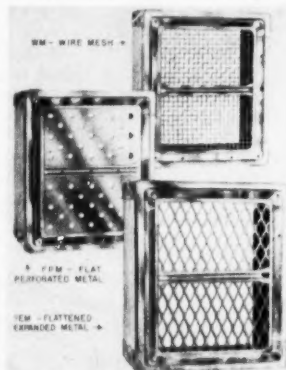
Trukcart, Inc., announces a "Trukcart" that is actually three trucks in one. The company points out that this truck will solve the small trucking needs of firms, especially where more than one type of truck is called for in the regular course of a day's work. Through a simple change, the truck can be made longer for use on bulky loads or changed into a platform truck. The change from one position to another is made by pulling out a release catch, then pulling out the handle which telescopes into the main frame. The release catch, when returned to position, holds the handle in place. When it is desirable to change to a platform truck, the same procedure is followed, except that the handle is placed inside the caster leg mounting. It is of steel construction, with a capacity of 600 pounds. It is 16½ inches wide, 49 inches long (with handle extended, 57 inches long). When used as a platform truck, the size of the bed is 16½ inches by 37 inches. It is equipped with two 8-inch fixed rubber tired wheels and two 3-inch swivel, rubber tired casters.



Circle 214 on Reader Service Card for more information

Metal Bottom Boxes

Shown here are three forms of the Cesco Container Company's new metal tote and shop boxes. The bottoms are made of either flat metal, flat perforated metal or wire mesh. The heavy strut is designed to prevent sag and permit bottom flux. There are no mitered joints. Corners are rounded. The solid side walls are of high grade hardwood lumber. Each box has a bottom stacking runner. The boxes are designed to prevent "box fatigue" or distortion.



Circle 215 on Reader Service Card for more information

More Maneuverability

Announcement of a new 1500-pound capacity fork lift truck has been made by the Baker-Raulang Co. Designated the Baker FL-15, the truck stacks 36-inch loads in a five foot aisle. Despite a very short overall length, it is said to have exceptional stability due to a low center of gravity. Elimination of the usual cowling in front of the operator

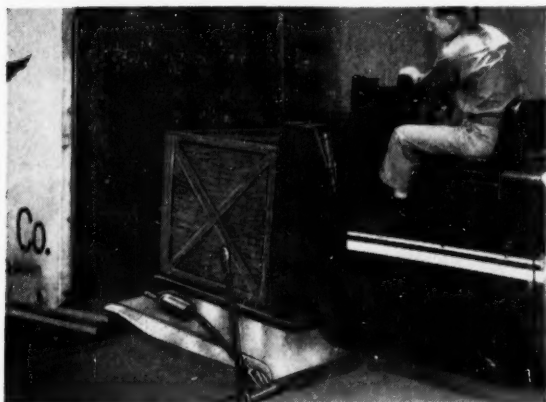


gives him perfect all-around vision at floor level. The offset position of the seat provides unobstructed view of both the load and any plant fixtures.

Circle 216 on Reader Service Card for more information

Cordless Switchboard

The Communications and Electronics Division of Motorola, Inc., has announced the development of a cordless switchboard to interconnect a telephone system with a mobile two-way radio sys-



STOP COSTLY HAND LOADING

RITE-HITE Adjustable Loading Docks speed up the flow of material in and out of your plant. Fork or lift trucks move directly from the plant into the carrier, handle material only ONCE. You get increased dock capacity, safety, and efficiency, when you specify **RITE-HITE**.

RITE-HITE requires

- ✓ No costly machinery
- ✓ No lubrication
- ✓ No fluid or electrical controls
- Write for literature

LOOMIS MACHINE CO.
RITE-HITE DIVISION

Dept. 16 • CLARE, MICHIGAN

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FLOW • NOVEMBER, 1953

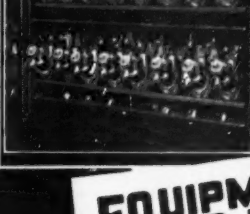
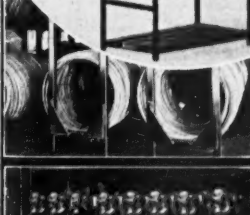
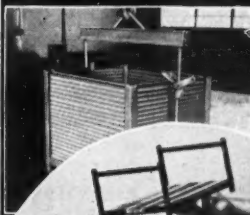
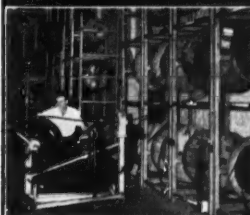


Well Stacked!

Let our rack specialists assist you in planning your new system to incorporate special economies in unit load handling—in production—in storage, regardless of the type material or product or unusual condition involved.

Our strong square tubular EMI racks save floor space and do it in the most efficient way.

Write
for our
catalog



**EQUIPMENT
MFG. INC.**

21552 HOOVER ROAD, DETROIT 5, MICHIGAN

STOCK RACKS • COLLAPSIBLE STOCK BOXES • ROLL RACKS • BULKHEADS

COIL RACKS • REEL RACKS

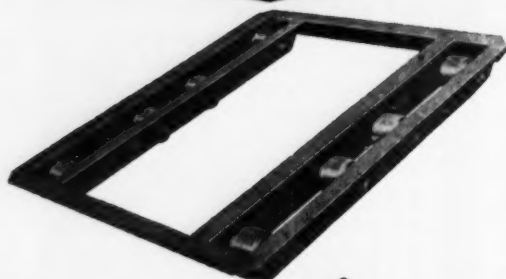
STOCK RACKS • PALLET RACKS • PALLETS

DOLLY TRUCKS

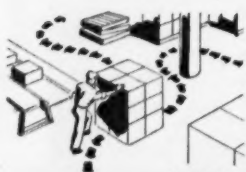
Circle No. 51 on Reader Service Card for more information

Circle No. 129 on Reader Service Card for more information

ACE SWIVEL KING PALLET ROLLER



ANY OLD DIRECTION *Who cares?*



ACE SWIVEL KING PALLET ROLLERS permit effortless movement of palletized loads in any direction and to any location needed. They speed up material and product movement and remove congestions when fork trucks are not available; eliminate costly delays. Ask for Eng. Bulletin 104K.

Distributorships Available

FRANK L. ROBINSON COMPANY

Industrial Engineers • Manufacturers • Distributors
LATHAM SQUARE BLDG. OAKLAND 12, CALIF.

tem, microwave system or power line carrier system. The unit, which is especially suited to dispatching for Miscellaneous Common Carrier (MCC) services, manually interconnects any one of five subscriber common battery telephone lines to a two-way radio system by pressing a button to select the desired circuit.

Circle 217 on Reader Service Card for more information

"Write On It" Tape

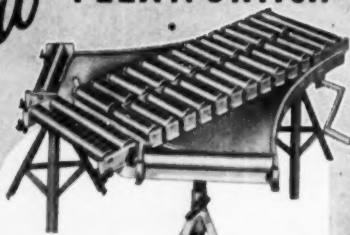
Said to be the solution to difficult labeling problems in office, stockroom and production department, this plastic "write on it" tape sticks without moistening to clean, smooth surfaces and can be applied and re-applied almost indefinitely. Any dry, blunt point can be used to write on it (a pencil, for example), and the writing, which appears due to the pressure alone of the writing instrument and is a transparent layer of plastic, is protected by this layer against smudging, grease, dirt and most liquids. It is manufactured by Labelon Tape Company, Inc.



Circle 218 on Reader Service Card for more information

3 WAY *Flow* "FLEX-A-SWITCH"

LEFT and RIGHT
and THROUGH



2 WAY
Flow



• LEFT & THROUGH
• RIGHT & THROUGH

ROLLERS are concentric at any setting to assure positive line of travel without guard rails. Can be used with curves and straight sections to distribute work in production or warehouse handling. Standard 11½", 15", 18" conveyor widths.

Remote or manual control.
Remote control illustrated at left.
WRITE FOR DETAILS

METZGAR CO.

MFORS. OF WHEEL & ROLLER GRAVITY &
LIVE ROLLER CONVEYORS • POWER BELT
CONVEYORS • SWITCHES • ACCESSORIES
& REEL DOLLIES



423 Douglas, N. W.

GRAND RAPIDS 4, MICH.

Circle No. 104 on Reader Service Card for more information

Universal Grab

A universal grab, engineered and used for picking up all types of heavy boxes, crates, bales or other loads where hooks may be used, is manufactured by Palmer-Shile Company. Made of heavy forged steel hooks with an adjustable spread which provides for handling of every size load from 16 inches to 48 inches, it is available in 1000 and 2000-pound capacities.

Circle 219 on Reader Service Card for more information

Straddle Truck

Powered with the six-cylinder diesel engine and said to travel approximately 25 miles an hour with an 8-ton load, the new straddle truck of the British Straddle Carrier Company, Ltd. is produced in eight different sizes. The maximum load is 10 tons. The truck has large front wheels with broad, deeply-ridged tires. The smallness of the rear wheels enables the truck to turn in a radius of approximately 100 inches. The driver sits high enough above the rear wheels to have a clear view of the road ahead. The seat is adjustable and can be



enclosed in a transparent plastic cab if required. A lever, operated by the driver's left hand, provides six gear changes, and a lever for his right hand controls the lifting unit. Designed primarily for loads up to 48 feet long, it may be fitted with platforms to carry boxes, barrels, drums, bags of cement, bricks and similar loads.

Circle 220 on Reader Service Card for more information

Sealed Bearing

Labyrinth or baffled path locks in the lubricant and keeps out dirt in the Bassick Company's new type sealed bearing for industrial casters and wheels. The illustration (A) shows a Neoprene ring in elastic contact with the axle shaft, (B) powder metal outside seal washer which is press fitted in the hub of the wheel and rotates with it, (C) steel roller bearing retainer washer which also rotates with the wheel, and (D) roller bearing end cage washers. The bearing is re-greased by the standard grease gun technique through regular Alemite pressure fittings.

Circle 221 on Reader Service Card for more information

GRAND FORK LIFT HAND TRUCK with VARILIFT

Lift Stacker
6158



... the 4-Speed Hydraulic System that Fits Lifting Speed to Load



Electric Lift Stacker
Model 7158



Shop Caddy
Model 4036

The new Grand Lift Stacker is a man-saving hand truck which moves and lifts heavy loads smoothly and safely. For warehouse stacking, for loading and unloading trucks, for handling boxes, barrels, dies, totebins and hundreds of similar loads, the Lift Stacker is Industry's most useful tool!

Lift Stackers are compact, easy rolling and may be used on low load limit floors. The sensational new Varilift speeds up handling of light loads and unloading operations by as much as 400%.

40 Grand models are available to meet practically any hand truck requirement with capacities up to 3000 lbs. and lifting heights to 98 inches in either manual or electric hydraulic lift types.

Your Grand distributor will gladly demonstrate in your plant.

Write or wire for complete information.



ALLIED MFG. & SALES CO.
201 N. WELLS ST. • CHICAGO 6, ILL.

Circle No. 3 on Reader Service Card for more information
FLOW • NOVEMBER, 1953

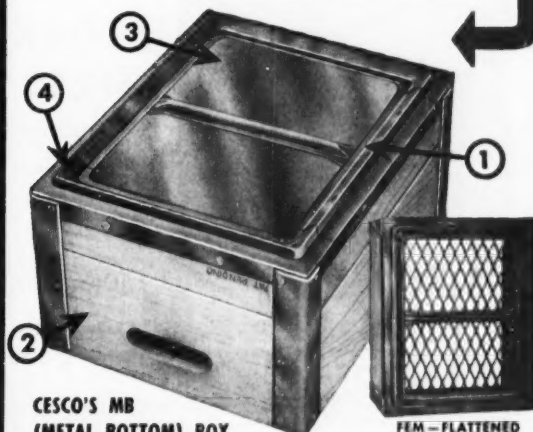
Cesco's TOTE-SHOP BOXES

...Do Your Job • EFFICIENTLY • EASILY • ECONOMICALLY

ON CONVEYORS, PALLETS, HAND TRUCKS,
SKID PLATFORMS, OR WHAT HAVE YOU



1. Heavy Duty Strut ... Prevents Sag ... Permits Bottom Flex ... Distributes shock.
2. High Grade Hard Wood Lumber.
3. (FM) Flat Metal Bottom ... likewise available in open type bottoms FEM-FPM-WM illustrated below.
4. Specially designed "Bottom Stacking Runner" ... One piece ... Rounded Corners (No Mitered Joints — No Distortion).



CESCO'S MB (METAL BOTTOM) BOX

(Prices net - per box)	MB-20	MB-24
Lots of 2000.....	\$2.65	\$3.00
1000 — 1999.....	2.68	3.03
500 — 999.....	2.71	3.06
250 — 499.....	2.76	3.11
100 — 249.....	2.81	3.16

2 STANDARD SIZES

MB-20: 14½" x 11¾" x 9¾"

MB-24: 17½" x 11¾" x 9¾"

F. O. B. Northampton, Mass.

CESCO'S WB (WOOD BOTTOM) BOX

Depending upon the material packed and the handling method stock sizes will accommodate loads up to 200 lbs.; possibly greater.

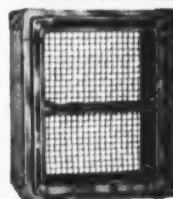
- Ruggedly constructed... steel reinforcing features of zinc coated prime stock... Self Stacking... convenient hand holes
- Binding rivets PLUS corner lock style yields maximum rigidity

Write today for quotations on special sizes
... Please submit specifications.

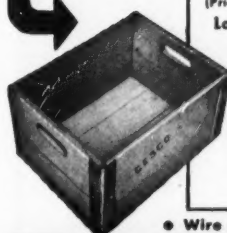
FEM — FLATTENED
EXPANDED METAL



FPM — FLAT
PERFORATED METAL



WM — WIRE MESH



CESCO'S WB (WOOD BOTTOM) BOX

(Prices Net - per box)	WB-1	WB-2	WB-3
Lots of 2000	\$1.96	\$2.14	\$2.28
1000—1999	1.99	2.17	2.31
500—999	2.02	2.20	2.34
250—499	2.07	2.25	2.39
100—249	2.12	2.30	2.44

No. 1 size — (I.D.) — 14½" x 11¾" x 9"

No. 2 size — (I.D.) — 18" x 11¾" x 9"

No. 3 size — (I.D.) — 20" x 11¾" x 9"

F. O. B. Northampton, Mass.

● Wire Baskets ● Special Pallets ● Tote Trays

CESCO CONTAINER CO.

475 Fifth Avenue
New York 17, N. Y.
Factory: Northampton, Mass.

Circle No. 31 on Reader Service Card for more information

ROLLWAY

BASKET STACKS

**ROLL
DOWN
COSTS**

↓

NOW

**READY IN
STANDARD
STOCK
SIZES**

LOW IN PRICE

Selection of 6 standard basket sizes and 3 dollie sizes assures the right Roll-Way to cut your handling costs.



GET THE FACTS NOW

Write for specifications and price list—no obligation.

HOFFMAN COMPANY

2584 W. PHILA. ST., YORK, PA.

Being Completely Satisfied

**COSTS
NO MORE**

Satisfying the special needs of industrial users of cranes and hoists has been our business for 30 years. We assume full responsibility from design through manufacturing . . . and even through actual erecting, if desired . . . and warrant every installation. Costs under this coordinated plan are competitively low. And the satisfaction of users is proved by the high ratio of repeat orders that we receive.

Complete crane installations
Job Engineers
and manufactured by
ABELL-HOWE
are certain to
SATISFY . . .
INVESTMENTWISE
and
PERFORMANCEWISE



When you are considering overhead materials handling equipment it is well to consult ABELL-HOWE on Complete Crane Equipment and Service.

Ask for
catalog
C-126

The Abell-Howe line includes a wide range of motorized and hand operated cranes, runways, monorails, electric hoists, storage racks and accessories.






ABELL-HOWE CO. 53 W. JACKSON BLVD
CHICAGO 4, ILLINOIS

Circle No. 1 on Reader Service Card for more information
158

Retractable 3-Wheel Hand Truck

This magnesium hand truck, with a fully retractable third wheel, has been announced by Magline Inc. The addition of the third wheel, according to the manufacturer, makes carting and wheeling of the heaviest loads easier. When the wheel is extended, the truck can be operated in a three-point position, preventing any load from bearing on the operator. Similarly, when the truck is stopped in this position, it can be re-started without the physical effort normally needed to overcome dead load-weight. For conventional use, the third wheel retracts snugly against the frame.



Circle 222 on Reader Service Card for more information

Steel Wheels

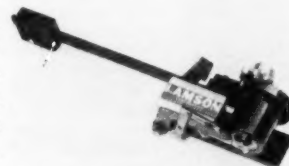
New series of drawn steel wheels, 4, 5 and 6 inches in diameter, is announced by the Faultless Caster Corporation. With a load rating of nearly double that of cast wheels, the new series is designed for operating loads up to 2,000 pounds per caster and a static load of 4 tons. The flat tread is for the purpose of withstanding shocks. A dust cap keeps out dirt and retains the bearing lubricant.



Circle 223 on Reader Service Card for more information

Overload Protector

Chain drives of all types are protected from overload by tripping a limit switch is provided in a new protector offered by the Lamson Corporation. The device consists of an eccentrically located idler sprocket counterbalanced by a weight loaded arm. The counterbalance is adjustable so that the device will operate on a chain conveyor with chain tensions up to 1000 pounds. A locking lever requires manual resetting once the overload has caused it to act. With an eccentric sprocket shaft of 0.875 inches in diameter, the unit can be



adapted to chain sizes from $\frac{1}{2}$ to $1\frac{1}{4}$ inches. The capacity of the limit switch is 10 amperes at 115 volts, alternating current, which can be increased to any desired specification through use of relays. Circle 224 on Reader Service Card for more information

Front-End Loader

New $1\frac{1}{2}$ yard front-end loader with a peak lifting capacity of 9000 pounds is announced by



The Baker-Lull Corporation. It has high-flotation pneumatic tires, five speed transmission, either forward or reverse, and power steering

available on all four wheels. Purchasers may have a choice of 77 horsepower diesel engine, or 93-horsepower gasoline. The five-speed transmission is designed to allow positive pressure to be applied to the axles at all times without loss of power. Three-to-one gear ratios on each wheel are designed to lessen the strain on the axle shaft. The loader mechanism is powered by a hydraulic system which the operator controls. The loader is designed to dig 25 inches below the tractor level. With a 100-inch wheelbase, it is said to have an inside turning radius of 7 feet, 6 inches.

Circle 225 on Reader Service Card for more information

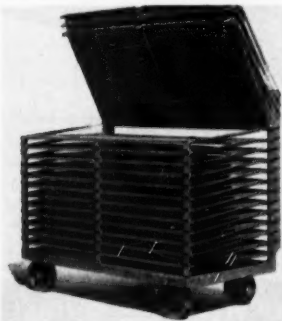
Tractor Tire

Larger cleats and shoulders with a wide footprint that increases flotation are the chief characteristics of a new Power-Grip rear wheel tractor tire announced by the B. F. Goodrich Company. The cleats are braced at the base to prevent bending and scrubbing on hard surfaces.

Write 263 on Reader Service Card for more information

Book Rack

Used for drying or curing sheets of material or conveying articles that must be kept separate, the book rack shown here is



manufactured by the Palmer-Shile Company. The shelves can be raised or lowered or automatically held in position by extension springs. The number of shelves, the distances

between them, the weight to be supported and the number to be carried on the truck are specified by the prospective user. The rack can be handled manually or by lift truck. It is equipped with either metal or rubber tired wheels.

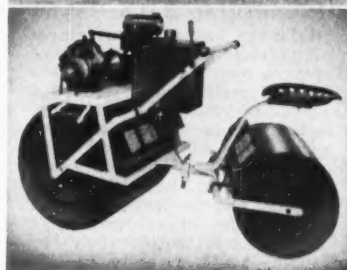
Write 264 on Reader Service Card for more information

MIGHTY MIDGETS...

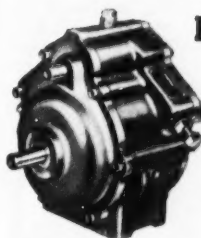
Miniature Switcher — equipped with S-N Model 5108 Reversing Transmission — in use on the outdoor Centerville & Southwestern (Model) Railroad serving Becker's Dairy Farm in Roseland, N. J.



Pint-sized, full scale "Motoroller" manufactured by Gabb Mig. Co., Windsor Locks, Conn., and featuring an S-N Model 5108 Reversing Transmission on a Briggs & Stratton $2\frac{1}{2}$ H. P. motor.



MIGHTY VERSATILE!



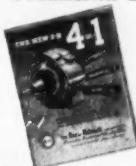
Especially when equipped

with **New 4 IN 1**

S-N REVERSING TRANSMISSION

Model 5108 combines Forward, Neutral, Reverse and Reduction all in one compact unit for quick, smooth reversing under full load.

Whether you are designing miniature locomotives, junior size rollers or any equipment requiring transmission units up to 8 H. P. . . . S-N's amazingly versatile Reversing Transmission offers the design engineer unlimited applications . . . especially for agricultural, materials handling equipment, construction and machine tools. And, what is equally important, it provides new economies in materials and assembly, heretofore unavailable with ordinary transmission units.



Why not contact us on your needs today, stating application, input and output speeds desired, H. P., power source, equipment to be driven. Write for new illustrated folder which is yours for the asking.

SNOW-NABSTEDT

Transmission Engineers
FOR NEARLY HALF A CENTURY

INDUSTRIAL DIVISION

THE SNOW-NABSTEDT GEAR CORP., HAMDEN, CONN.

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Classified Advertising Section

USED EQUIPMENT — MEN — JOBS — LINES

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

FOR SALE

PRODUCT MANAGER INDUSTRIAL RACK SALES

Nationally known manufacturer of material handling equipment seeks a man qualified to organize and promote the sale of a new line of industrial racks. Selected person will need to develop sales manuals, catalogs, and literature, price schedules, advertising, sales training schools, and do some personal selling. The opportunity is a rare one. Interested, qualified people should write to FLOW, c/o Box 11153.

New 36-inch wide flat rubber Belt Conveyor, 300-ft long, available at half price. Write FLOW, c/o Box 11253.

Complete Hanak Trolley system, in good condition; installed new 1927 and 1928; 50- $\frac{1}{2}$ HP motors; will operate on either 110 or 220 volts. 100 trolleys. Approx. 6500 ft. of track equipped with copper "T" rails; switches located throughout system. Would consider sale of substantial part. GULF ATLANTIC WAREHOUSE CO., Memphis, Tennessee.

HELP WANTED

GOLDEN OPPORTUNITY FOR MATERIAL HANDLING SALESMEN

Choice territories still available. Company manufactures complete standardized line. We want men with initiative and ability—willing to concentrate on fewer lines, with greater sales appeal. Stop "free lancing" and specialize in the industry which is revolutionizing American manufacturing methods. Give full information—experience, education, photo if available, and minimum drawing account if necessary. MARKET FORGE COMPANY, Material Handling Division, 35 Garvey Street, Everett 49, Mass.

CONVEYOR DESIGN ENGINEER

Progressive, well established conveyor manufacturer has ideal opportunity for experienced design engineer. Frankly, we want a man with the ability to take over and organize development projects. A man with the ingenuity and imagination required for real creative thinking and yet with sufficient managerial ability to carry these projects through to completion. Projects include the design and development of new types of power and gravity conveyors. Applicant should have experience in conveyor design, a degree in engineering or the equivalent in actual experience. This position offers unexcelled opportunities plus an excellent salary. Send resume to

R. F. Tomlinson
General Manager
Conveyor Department
The OLIVER Corporation
A. B. Farquhar Division
142 N. Duke Street
York, Pennsylvania

Here's the **LIFT**
that **LOWERS** Costs

Move Loads Between Levels

with a **SERVICE ELECTRAULIC LIFTER**



Service "Four-Poster" Lifter eliminates long, space-wasting ramps and takes strain off men and mobile equipment in moving loads between floor levels. Used as a dock hoist, it speeds up loading and unloading of trucks and boxcars. Operates smoothly from an electric-hydraulic power unit de-

signed for continuous operation. No pit is required—it's easy to install indoors or out. Lifters are available with capacities to 12,000 lbs., platform sizes 5 to 12 ft. and for lifts 5 to 17 ft. Both portable and permanently-installed units. For more detailed information, write today, for Bulletin 51.

See **SERVICE** for "Specials"

Versatile design of Service's wide range of Lifters, Levelers and Liftables permits them to be made up as semi-specials to fit your exact needs. We'll be glad to help you with your lifting problems.



SERVICE CASTER & TRUCK CORP

Executive Offices: Albion, Michigan • Plants at Albion, Michigan and Somerville 43, Mass.

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY FOR NEAREST DISTRIBUTOR

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Keep **MOTOWLIFT** in Mind!



It's the fork lift truck so good that military needs take all we can make. Soon, we hope, you will be able to buy it again—the best truck for most jobs in most plants. Keep MotowLift in mind.

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Circle No. 87 on Reader Service Card



**WELDER'S
TRUCK**



**BARREL and
BOX SKID**



Vertical DRUM LIFTER

For handling open and closed steel drums in vertical position, by crane or hoist. All-steel, with heavily welded chain. Sure-hold safety barrel grip. Saves plant space. Use for either high or low ceiling condition.

STACKING RACK

Tiered by Single Operator.
Note How Ends Lock in Place



CARBOY TRUCK



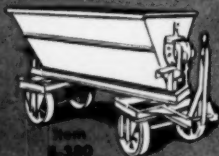
**All-Steel
STOCK RACK**



**UTILITIES RACK
on wheels**



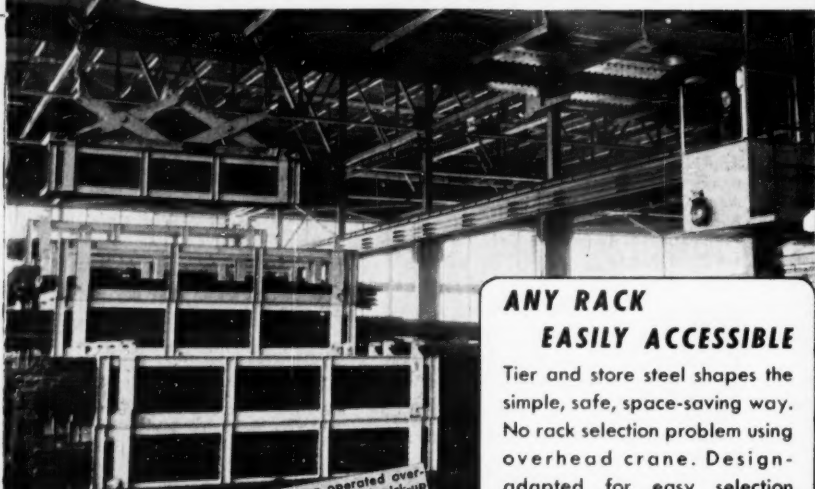
**CORRUGATED BOX
with legs**



**TRAILER TRUCK
side dump**

CONSULT FOR THE BEST

**PS PORTABLE Heavy Duty
BAR RACKS**



**ANY RACK
EASILY ACCESSIBLE**

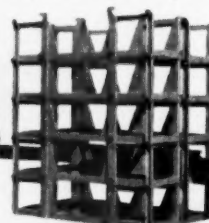
Tier and store steel shapes the simple, safe, space-saving way. No rack selection problem using overhead crane. Design-adapted for easy selection from racks without disturbing tiers. Custom-built for any capacity and stock length.

Any rack easily accessible by one-man operated overhead crane with automatic double tong for quick pick-up and easy carrying.



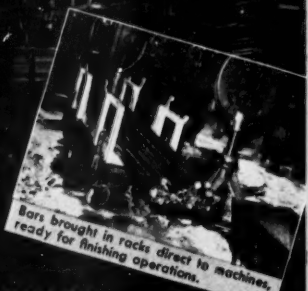
Sturdy, all-purpose bar racks in tiers save man-hours, make for maximum storage efficiency.

Thousands of different size bars may be stored in tiers to save valuable floor space.



Item C-497

Efficient use of floor space makes necessary rack tiers for various capacities and bar lengths.



Bars brought in racks direct to machines, ready for finishing operations.

DESIGNED AND MANUFACTURED BY

Palmer Shile Co.
16012 FULLERTON AVE., DETROIT 27, MICH.

When Ordering Always give "item" number; this will help prevent error. Write for catalog.

LOADING OPERATIONS

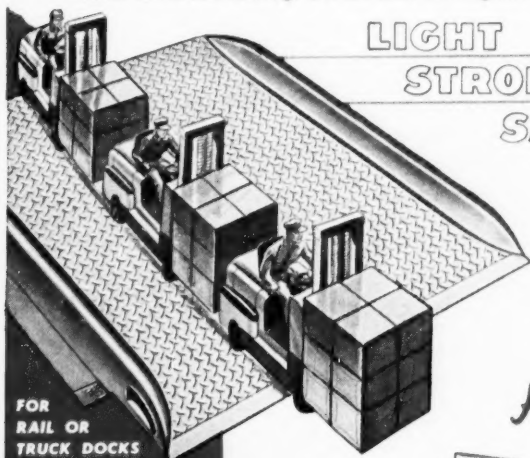
CHOKED..

Are overtaxed shipping and receiving facilities jamming up the loading dock . . . putting a stranglehold on output? Are efforts to increase production and profits hampered by lack of additional loading capacity? There is one *proved* way to multiply loading capacity . . . eliminate bottlenecks . . . prevent costly tie-ups—*and all without major capital expenditure!* Do as many thousands of leading companies have done. Equip your docks with magnesium-light, magnesium-strong Magliner Dock-Boards! With these low-cost, high output units in operation, you can speed material flow . . . establish faster, easier-access transit between plant and freight carriers . . . and cut loading time to a new low!

Magliner Dock Boards present no expensive installation problem! No fixed inflexibility! Magliners are permanent . . . yet you can move them about, *whenever and wherever you wish!* Fabricated of the world's lightest structural metal, Magliner Dock Boards are easily handled by one man. Of bridge design construction they are capacity rated to handle the heaviest of loads and equipment. Available in 34 standard models, as well as custom engineered to exact requirements. Get the benefits of smoother, faster lower-cost loading! Get the facts on Magliner!



**LIGHT
STRONG
SAFE**

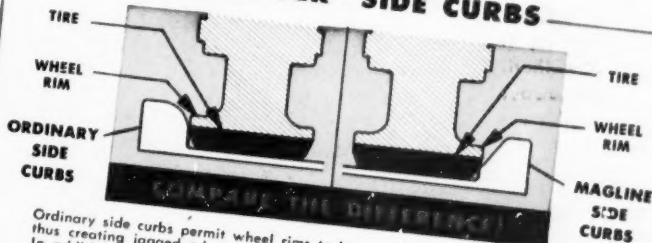


**FOR
RAIL OR
TRUCK DOCKS**

MagLiner
MAGNESIUM
DOCK BOARDS

Another great new First from Magliner!

"TIRE SAVER" SIDE CURBS



Ordinary side curbs permit wheel rims to bear against and wear into the curb, thus creating jagged edges which soon result in costly, needless tire damage. In addition, such forceful contact weakens the side curb and shortens service life. Design of the new Magliner "Tire-Saver" side curb specifically prevents metal-to-metal contact . . . wheel-to-curb collision—eliminating the single biggest cause of tire and dock board damage!

**EQUIPMENT
UNDERCLEARANCE**
Low side curbs, proper board length, precise crowning. All combine to insure absolute underclearance for low handling equipment.

LONG SPANS

Ample strength, rigid structure, safe, easy crossover. For all span requirements—short or long!

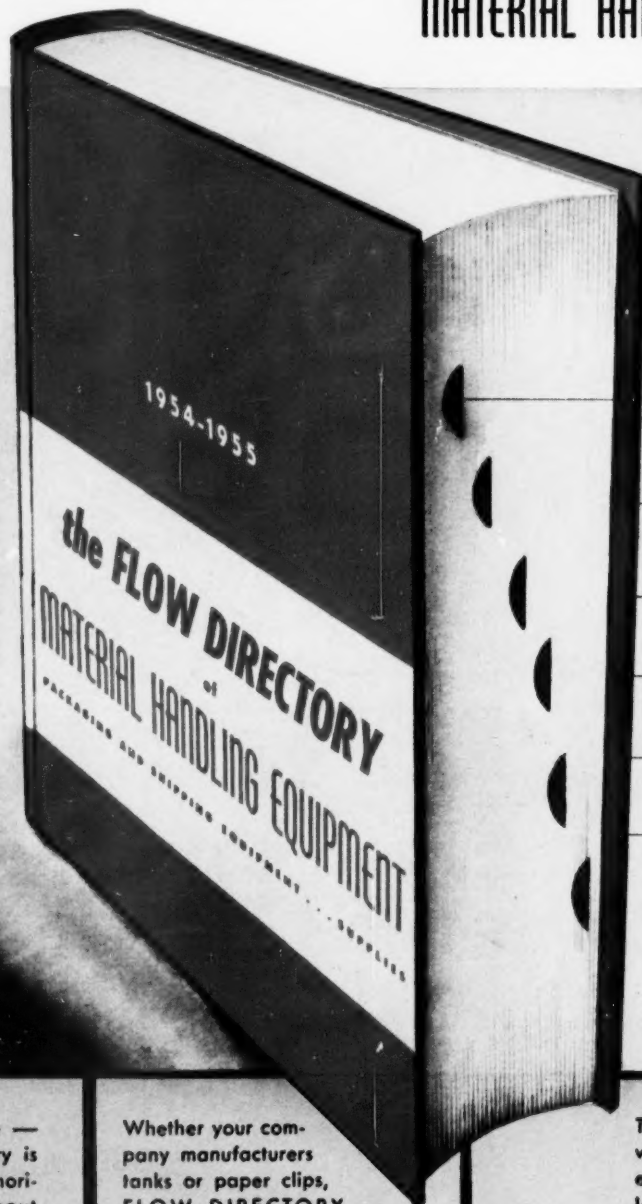
WRITE TODAY for Information Bulletin DB-204R

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